

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2074.—VOL. XLV.

LONDON, SATURDAY, MAY 22, 1875.

WITH SUPPLEMENT. PRICE SIXPENCE. PER ANNUM, BY POST, £1 4s.

**MR. JAMES H. CROFTS, STOCK AND SHARE BROKER,**  
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Business transacted in all descriptions of MINING Stocks and Shares (British or Foreign), Banks, Bonds, Railways, Miscellaneous, Insurance, Assurance, Gas, Water, and Dock Shares.  
Business negotiated in Shares not having a general market value.  
Business in all COLLIERIES and IRON Shares, and in the principal MANUFACTURING COMPANIES of the NORTH OF ENGLAND and SCOTLAND.  
Accounts opened for the Fortnightly Settlement.  
Monthly and Daily Price Lists issued.  
Bankers: City Bank, London; South Cornhill Bank, St. Austell.

**SPECIAL DEALINGS** in the following, or part:—30 Bampfylde; 15 Bilson; 80 Bog, 10s. 6d.; 20 Cardiff and Swansea; 50 Chicago, £3 2s. 6d.; 50 Chontales, 10s.; 100 Chapel House, £4 8s. 9d. (cum div.); 30 Cathedral, £1 1/2; 25 Don Pedro; 20 Eberhardt; 10 East Van, 3s. 6d.; 15 Frontino, 11s. 3d.; 55 Great West Van, 9s. 9d.; 80 Gladstone Quarry; 10 Gawton, 14s.; 50 Gold; 70 Gold Run, 18s.; 50 Javali, 13s. 6d.; 30 Marke Valley; 50 Malpas, 15s. 6d.; 100 Old Treburget, 4s. 6d.; 40 Pennerley, £2 7s. 6d.; 200 Penstruthal, 12s.; 200 Positive Assurance, 14s. 3d.; 50 Port Phillip, 21s. 9d.; 50 Parys Mountain, 13s.; 100 Plynlimmon; 50 Rookhope; 10 Roman Gravel, £12 1/2; 15 Richmond, £9 1s. 3d.; 20 Sweetland, £3 3/4; 20 Tankerville, £12 7s. 6d.; 100 Tylwyd; 20 Thorp's Gawber; 10 West Chiverton, £14; 30 West Tankerville; 50 West Eagar Lie, 18s. 9d.  
BUSINESS ON HAND in all the leading TINS, COPPER, and LEAD SHARES.  
Shares sold for forward delivery (one or two months) on deposit of 20 per cent.  
SPECIAL BUSINESS in CHAPEL HOUSE shares. Dividend just declared. SHARES ON SALE at LOWEST.

**MR. W. H. BUMPUS, STOCK AND SHARE BROKER,**  
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Purchases and Sales negotiated in Unmarketable Stocks and Shares.  
Speculative Accounts opened for the Fortnightly Settlement.  
References given and required when necessary.  
A Stock and Share List forwarded to bona fide Investors free on application.  
Bankers: The National Provincial Bank of England, E.C.

**W. H. B. has SPECIAL BUSINESS** in the undermentioned:—  
25 Asheton, 20 East Caradon, 28s. 6d.; 40 Parys Mount, 12s. 9d.; 40 Bampfylde, 5 East Lovell, £2 1/2; 70 Port Phillip, 22s.; 50 Bog, 11s.; 40 Flagstaff, £2 6s. 8d.; 50 Rookhope, 6s. 6d.; 100 Chontales, 12s. 6d.; 70 Frontino, 11s. 3d.; 15 Roman Gravel, £12 1/2; 50 Gold (Wales), 9s.; 20 Richmond, £9 3s. 9d.; 50 Cathedral, 100 Javali, 13s. 6d.; 50 St. Patrick, 10 Sweetland, £3 3/4; 25 Cedar Creek, 26s. 6d.; 25 Ladywell, £3 18s. 9d.; 20 South Condurrow, 100 Chicago (Silver), 40 Last Chance, 28s. 9d.; 100 Tecoma, 3 Carn Brea, £39 1/2; 75 Malpas, 15s. 6d.; 2 Tincroft, £20 1/2; 10 Cape Copper, £36 1/2; 100 Malpas, 17s. 6d.; 5 Van, £24 1/2; 50 Chapel House Colliery, 50 New Consols, 35s.; 50 Van Consols, £2 1/2; 10 Don Pedro, 32s.; 20 New Sharistone, 25 Wheel Jane, 150 Old Treburget, 4s. 6d.; 25 W. Tankerville, 14s. 6d.; 20 Eberhardt, £6 8s. 9d.; 20 Pennerley, £2 8s. 9d.; 50 W. Godolphin, 16s. 6d.; 20 East Van, 50 Plynlimmon, 8s.; 50 W. Tankerville, 23s.; 50 Emma (Silver), 36s. 6d.; 100 Penstruthal, 12s.; 50 West Great Work.

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Bankers: London and Westminster, and City Bank.  
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SHARES WANTED:—150 United Bituminous, 30 Lawes Chemical, 50 Frontino, 100 Roca, 25 Diamond Fuel, 10 Sweetland.

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60 Asheton, 60 Javali, 12s.; 60 St. Patrick, 22s. 6d.; 60 Bampfylde, 11s.; 20 So. Roman Grav., 17s.; 60 Bog, 11s.; 60 Llanrwst, 20s.; 10 Sweetland, £3 2s.; 15 Birdseye, £2 1/2; 25 Marke Valley, 23s.; 10 South Tolcarne, 3s.; 20 Chr pel House, £4 1/4; 70 New Rosario, 6s. 9d.; 30 Teoma, £2 1/2; 60 Don Pedro, 32s.; 40 Port Phillip, 20s. 9d.; 25 Van Consols, £2 3s. 9d.; 15 Devon Consols, £2 1/2; 50 Prince of Wales, 7s.; 50 W. Eagar Lie, 18s. 9d.; 15 Eberhardt, £6 8s. 9d.; 50 Penstruthal, 11s.; 10 Wheel Crebor, £3; 25 Emma, £1 13s. 9d.; 30 Pennerley, £2 1/2; 5 West Chiverton, £14 1/2; 30 Flagstaff, £2 6s. 8d.; 60 Roca, 6s. 6d.; 25 W. Tankerville, 23s.; 60 Frontino, 11s. 3d.; 50 Rookhope, 6s.; 60 West Milwr, 17s. 6d.; 60 Gladstone, 20s.; 10 Richmond, £9; 20 W. Godolphin, 16s.

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The enormous profits being realised by judicious mining investors justify Mr. Budge in urging these investments. There is nothing at the present time offering such advantages. Mr. B. recommends the purchase of St. Agnes Consols shares; this mine will be selling at £40,000 instead of £20,000 as at present. See report in this week's Mining Journal.  
Mr. Budge is prepared to deal at close prices in Old Tincroft Consols; present aggregate value of ends £17 per fathom; a property of rare merit; in one of the richest districts in England.  
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30 Bampfylde, 30 London & Call, 13s. 6d.; 100 United Bituminous, 30 Chapel House, 30 Old Treburget, 5s. 3d.; 20 West Chiverton, 70 Cathedral, 35 Pennerley, £2 6s. 3d.; 30 W. Eagar Lie, 19s.; 10 Devon Consols, £2 9s.; 50 Plynlimmon, 10 W. Tankerville, 21s. 9d.; 50 Wheel Crebor, 20 Gladstone Whin, 22s.; 20 Port Phillip, 21s. 9d.; 15 Wheel Grenville, £4. 20 Javali, 13s. 6d.; 15 Tankerville, £12 1/2; 20 Tylwyd, 20s.  
Shares having no quotations affixed may be had at lowest market prices.  
WEST CHIVERTON.—Shares are likely to have a great rise; price now about £14 to £15. The mine is under good management, profits are being made, and dividends will soon be resumed. Shares in this mine were once £80 per share. Business at market prices.  
Chapel House Colliery, Cathedral, and Plynlimmon shares should be bought. Shares may be had at lowest.  
On payment of 20 per cent., deposit shares may be had for end of June account. References exchanged.  
Prompt attention given to all letters and telegrams.

**MR. T. E. W. THOMAS, SWORN SHARE BROKER,**  
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The following are the latest prices at which business could be done. Where the difference between the buying and selling price is wide transactions may be effected at an intermediate price:—

| Buyers.               | Sellers.             | Buyers.               | Sellers.            |
|-----------------------|----------------------|-----------------------|---------------------|
| Bampfylde             | £ 1 .. 1 1/2         | New Rosario           | 6s. 9d. .. 7s. 9d.  |
| Birdseye Creek        | 2 .. 2 1/2           | Parys Mountain        | 12s. .. 14s.        |
| Bog                   | 10s. .. 12s.         | Pennerley             | £ 2 1/4 .. £ 2 1/2  |
| Chapel House Colliery | 37 1/2 .. 40         | Port Phillip          | 1 .. 1 1/2          |
| Chontales             | 8s. .. 10s.          | Prince of Wales       | 6s. .. 7s.          |
| Cook's Kitchen        | 6 .. 6 1/2           | Roman Gravel          | 12 1/2 .. 13        |
| Devon Great Consols   | 2 1/2 .. 3           | Rosewall Hill         | 5s. .. 7s.          |
| Don Pedro             | 1 1/2 .. 1 1/2       | St. Patrick           | 1 .. 1 1/2          |
| Eberhardt             | 6 .. 6 1/2           | South Aurora          | 9s. 6d. .. 11s. 6d. |
| East Caradon          | 1 1/2 .. 1 1/2       | South Condurrow       | 2 1/2 .. 3 1/2      |
| East Lovell           | 8 1/2 .. 9           | So. Roman Gravel      | 15s. .. 17s. 6d.    |
| East Pool             | 1 1/2 .. 1 1/2       | Sweetland Creek       | 3 .. 3 1/2          |
| Fast Van              | 12 1/2 .. 12 1/2     | Tankerville           | 12 .. 12 1/2        |
| Flagstaff             | 2 .. 2 1/2           | Tincroft              | 18 .. 20            |
| Gawton                | 12s. .. 14s.         | Tylwyd                | 12s. 6d. .. 14s.    |
| Gold                  | 7s. 6d. .. 10s.      | Van                   | 23 .. 24            |
| Hington Down          | 1 1/2 .. 1 1/2       | Van Consols           | 2 .. 2 1/2          |
| Javali                | 12s. 6d. .. 13s. 6d. | West Chiverton        | 14 1/2 .. 15 1/2    |
| Ladywell              | 3 1/2 .. 3 1/2       | West Tankerville      | 1 .. 1 1/2          |
| Marke Valley          | 1 .. 1 1/2           | Wh. Kitty (St. Agnes) | 3 1/2 .. 3 1/2      |
| New Quebrada          | 1 1/2 .. 1 1/2       | Wheel Pevor           | 8 .. 8 1/2          |

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STOCK AND SHARE BROKER.

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LONDON MANAGEMENT OF COMPANIES UNDERTAKEN.  
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J. M. and Co. advise respecting the Sale and Purchase of all classes of Security, and investors should communicate with them before buying. Shares at present price sold for delivery three months hence on receipt of cover, varying according to the class of security.  
NORTH PRINCE PATRICK.—These shares are strongly recommended for an immediate and important rise—vide report in this day's Journal.  
Bankers: The London and County Bank, Lombard-street.

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30 Almaden, £2 1/2; 50 Frontino, 11s. 3d.; 75 Penstruthal, 11s.; 30 Almaden, 16s. 3d.; 30 Hingston Down, 27s. 6d.; 170 Roca, 5s. 9d.; 40 Birdseye, £2 2s.; 70 Javali, 13s.; 20 Richmond, £9 1s. 3d.; 100 Chapel House, £4 5s.; 50 Ladywell, £3 18s. 9d.; 15 Roman Grav., £13; 20 Sweetland, £3 3s. 9d.; 70 Chontales, 10s.; 70 Malpas, 15s. 3d.; 70 St. Patrick, £1 2s. 6d.; 40 Cedar Creek, £1 5s.; 40 Marke Valley, £1 1/2; 80 So. Condurrow, £3 3s. 9d.; 50 Don Pedro, £1 1/2; 20 New Rosario, 7s.; 15 Tankerville, £12 7s. 6d.; 25 Devon Consols, £2 1/2; 25 Pennerley, £2 1/2; 20 Van, £2 1/2; 50 East Van, £1 13s. 9d.; 70 Port Phillip, £1 1s.; 45 West Eagar Lie, 18s.; 15 Eberhardt, £6 1/2; 40 Parys Mount, 11s.; 30 W. Tankerville, 22s. 6d.

**INSPECTIONS IN AMERICA.**  
**MR. C. J. HARVEY, M.E.,** leaves London for an INSPECTION TOUR in AMERICA, on SATURDAY, the 29th instant. Communications respecting engagements for Inspections to be addressed to—  
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For bona fide advice and general information touching mines, home or abroad, investors should apply to Messrs. ENDEAN and Co., 6s, Gracechurch-street, London, E.C.  
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SIR J. E. EARDLEY WILMOT,  
BART., M.P.

The Report for 1874, copies of which with the statements of account can be obtained on application, shows that a sum equal to 40 per cent. of the premium income was added to the funds, while the general income was increased. 349 policies, averaging £555 each, were issued. The directors continue to make advances to assureds in the office on liberal terms. H. D. DAVENPORT, Secretary.

### GEOLOGY OF THE ORES OF IRON.

As one of the evening sittings held during the recent annual meeting of the Iron and Steel Institute Prof. WARINGTON W. SMYTH, M.A., F.R.S. delivered a valuable and interesting lecture on "The Ores of Iron considered in their Geological Relations" in which he remarked that when we observe the various results of analysis, or even carefully look into the actual samples of ore, there are often anomalies noticeable where not expected, often two or more kinds mingled together, and giving intermediate results; but he holds it not the less desirable that, as far as possible, we should fix the characters of certain species, hold fast to them through their sundry minor variations, and learn how to follow the clue when these substances are found to pass distinctly from one specific condition to another. He would, therefore, pass under review these important ores, to impress their individuality on the memory, and would then consider some of the changes which nature in many cases has wrought in them, and which sometimes may even need to be noticed in the smelting process, but which very generally will have to engage the attention of the explorer and the miner.

First in order, if we omit the elementary metal which as such is a rare and often disputed constituent of the earth's crust, we recognise magnetite or magnetic iron ore, by its octahedral crystallisation, often taking partially or entirely the form of the rhombic dodecahedron, but even when almost compact betraying its crystalline form by the brightness of the triangular faces; further, by its black colour, and black streak, and its magnetic property often showing polarity. This mineral, a proto-sesquioxide of iron with 72.41 per cent. when pure is the fine rich ore which Dannemora in Sweden, Arendal in Norway, and several other mines in Scandinavia, have worked with great success for centuries from elongated deposits which are neither lodes nor true strata. It is mainly this ore which forms the vast mass at Gellivara, in Lapland, apparently on a larger scale than any other known agglomeration of iron ore; this it is also which is the chief constituent of the remarkable protrusions boasted of by the Uralian metallurgists, the Katschkanar, the Blagodat near Kuschwinsk, and the Vissokaya Gora. In Italy, fine examples of magnetite are those of Traversella, in the Piedmontese Alps, and that of Cape Calamita, in the Isle of Elba. In North America the older stratified rocks, both Laurentian Huronian, in Canada, as well as in New York and New Jersey, abound in strips, beds, and masses of magnetite, which are concordant with the stratification, and though by no means uniformly rich are sometimes wondrously massive. These have been opened out in hundreds of mines, and are doubtless destined to play a great part in the iron trade of the United States. In Great Britain a few localities only can be quoted as offering magnetite in workable quantities. A small vein near Penryn, in Cornwall, and another or two near Roche, and, perhaps, that of Ballycoog, near Arklow, ought to be available in favourable times; while a singular series of several successive beds exist at Hey Tor, near Bovey, in Devon, which has only now in these last few weeks been placed in a working position. These remarkable crystalline deposits show on the line of the cross-cut a thickness worthy of attention, and a mode of occurrence bearing strong analogy to some of the Scandinavian mines. The minutely crystalline magnetite, which occurs in the north flanks of Aran Mowddu and of Caer Idris, in North Wales, has never yet been opened out with perseverance, and the objection to some of it that it is pyritous is to be met by more careful selection.

The second species is the well-known hematite termed specular ore, or oligist, when crystallised, red ore or kidney ore when in a compact or fibrous condition; it is sesquioxide of iron with 70 per cent. of iron in its state of highest purity, too well known to need description, and an important ingredient in the trade of most of the iron-making countries, is distinguishable in most cases instantly, if not by its external aspect, by the blood-red streak which is sometimes difficult to produce on surfaces as hard and as smooth as polished steel, will appear even though the colour of the outside be purple or black. The value of this ore, so little recognised 30 years ago, is now too well known for me to enlarge upon. Its occurrence in Furness and near Whitehaven has been well described in the pages of the *Journal*, and a very curious parallel to the northern mines may be found on a smaller scale in the numerous deposits, partly of red and partly of brown hematite, which have for years been worked in the Mendip Hills. There could not be better examples than at Roanhead and Hodbarrow mines of the entire irregularity of form assumed by these vast masses, of their great productive capability, and of the well-merited success due to the unsparing use of the boring rods. In our western districts, as near St Austell and at Exmoor, hematite occurs in veins, not generally large, but exhibiting some splendid ores, and showing where they intersect the clay-slates, an analogy with the rich district of Siegen in Prussia, also situated on rocks of the Devonian system. There are cases in which these ores are certainly of a bedded character, as in Canada and at La Marquette in Michigan, where very extensive workings have proved certain strata, mostly made up of this ore, to be from 50 to near 100 ft. in thickness. Probably those of Bilbao may be thus stratified. The Americans seem mostly to ascribe an intrusive origin to their great masses of red ore in Missouri, the well-known Pilot Knob, and Iron Mountain; and the magnificent displays of ore in Elba, some seven in number, occurring in a straight line, are regarded by numerous authors as of volcanic origin. In fact, when observers have been familiar with the marvellous production of crystallised specular iron by sublimation from the neighbouring volcanic vents, it is easy to lean to the belief of its being connected with volcanic influences in Elba.

The curious ores, he continued, to which the names of Bauxite and Wüchite have been given, in which alumina takes the place of much of the peroxide of iron, deserve special mention, from the fact of the Irish variety being so largely employed in the smelting of hematites. Mr. Snellus has analysed some of these ores in practical use, which, with a percentage of 53, 34.37, and 28.93 of peroxide of iron, contain respectively 17.89, 39.20, and 45.75 of alumina. Of Turgite, an oxide of iron with 54 per cent. of water, we know but little, yet it doubtless occurs largely among the brown ores which come to the furnace. Göthite is a peroxide of iron with 10 per

cent. of water. One of the varieties, Lespidverokite, is translucent and red by transmitted light; another, "needle iron ore," brilliant, but only slightly translucent; a third, wood iron, opaque and fibrous; a fourth, brown or black ore, opaque, and with no regular structure; but, from the splendid prismatic crystals of Lostwithiel downwards, all these varieties have a brown streak. The most notable examples of these ores in our own country are at the Restormel Mine in Cornwall, on Exmoor, on the Brendon Hill, in the Mendip, near Bristol, and in the Forest of Dean; but there are very numerous places, at home as well as abroad, where, amidst the ores called in the large scale brown iron, or brown hematite, a portion will prove to be this monohydrate, whilst other parts of the same deposit may, very likely, belong to the next following species. The name of stilpseudite has been given to a mineral with a lustrous pitchy fracture, but it is somewhat uncertain as to whether it belongs to the above-named division.

A large proportion of the brown iron ore, or that which gives a brown streak, belongs to the limonite series (which has about 60 per cent. of iron with 14½ per cent. of water), the iron being contained in a peroxide, but both the external contour and the structure are very variable. The fact of the brown ores being often met with in the shallower parts of repositories, which may contain other substances in depth, is an explanation of their having been largely explored and worked from a very early period. Thus, as a stratified rock limonite it may sometimes in great thickness be followed downward a long way without change, as in the mines near Elbingen, in the Hartz, or it may change downward into the impure carbonate, as in the Lias and Oolitic strata. When in veins it will commonly be found to constitute a sort of gossan or "iron hat," fated to yield to other minerals in depth. In the Alston Moor district, hitherto but little worked, it is observable that the rider of the lead lodes often shows itself at surface in a great mass of brown ores; and similarly, in the central part of Cornwall, between Par Station and Ladock, a number of lodes, apparently continuous in their course, with veins bearing elsewhere copper and tin ores, carry as they approach, and in some cases enter the granite rock, brown ores in considerable abundance. Xanthosiderite or yellow iron ore, a peroxide with nearly 18½ per cent. of water is of a yellowish colour, sometimes in silky fibres and needles, in other cases more like an ochre; but it is cited definitely from only a few localities; and from the character of the occurrence, so commonly in successive incrustation, it is difficult with many of the substances called "morass," or "bog iron ore," &c., to feel assured where the line should be drawn.

Chalybite, siderite, white iron ore, carbonate, spathic, spathose, or sparry iron, is a carbonate of iron, and a little more than 62 per cent. of protoxide would give about 48½ per cent. of metallic iron; but this is an ore which almost invariably contains, in lieu of some of the iron, a notable amount of manganese, calcium, or magnesium. The rhombohedral crystallisation and the crystalline structure are sometimes minutely but often largely lamellar, both outer and inner planes often curvilinear, with its light shades of colour so readily heightened by exposure, these are tolerably distinct external characters. It is only, however, within the last 25 years that enquiries after steel irons, and more recently after the means of making spiegeleisen, have attracted attention to it in this country, and have led to extended observations. The late Mr. Charles Attwood was the first to utilise the considerable quantities of this mineral present as "rider" in the ironstones of many of the lead mines in Wearlale and other parts of the North. In the granite of Foxdale, in the Isle of Man, in the great cross-course lead lode of Frank Mills, in Devon, and in many of the Cornish mines, the admixture of chalybite with other ores is often on a large scale, but its value is commonly marred by difficulties of carriage. More important is the range of veins occupying a length of some 30 miles in Somerset and North Devon, from Ebbw Vale Mine, of Raleigh's Cross westward, to near Ilfracombe. Nor could he omit to mention the fine lode of Perran, sometimes 100 ft. across, if taken horizontally from wall to wall, where workings, commenced in brown ore, have opened downwards, at depths of from 30 to 120 feet, into large masses of chalybite. The varieties of ironstone in which the carbonate is mingled with a very variable amount of clay, of lime carbonate, or of carbonaceous matter, are well known from their wide diffusion over this country, and their commercial importance. They are, in fact, objects of more interest to the smelter than to the mineralogist. Certain of these, as the celebrated Cleveland ore, date their employment from a very few years ago; others, like the dark psilolitic masses of the paleozoic schists of Anglesey and North Wales, have hitherto met with but little attention. Prof. Smyth concluded his lecture, which was listened to with evident appreciation throughout, by pointing out the relationship between these several oxides by reference to typical specimens taken from localities where the development can be studied on a large scale.

### BLASTING EXPERIMENTS AT CAULDON LOW.

The members of the North Staffordshire Institute of Mining and Mechanical Engineers went, by invitation, to the large limestone quarries belonging to the North Staffordshire Railway Company, at Cauldon Low, to witness some blasting experiments. After a short stoppage at Froggall, they proceeded to the foot of the incline, up which a tramway is laid in three stages for conveying the limestone from the quarries to the railway and the canal. Seats were placed in wagons, in which the members of the Institute were drawn to the top. In the first stage the incline is steepest, the gradient being 1 in 12, and level ground is reached after passing through cuttings, and more than once by the edge of a deep ravine, at a distance of 1694 yards. The next stage is somewhat longer, being 2105 yards, including a tunnel 500 yards long. The last stage is the shortest, being 1044 yards long, so that the three are nearly three miles in length. The ascent is not unpleasant, and when the summit of the hill is reached much fine scenery is brought to view to reward the visitor. There are two large quarries belonging to the company within a short distance of the top landing stage. There is a hill between them, but a tunnel is cut from one to the other. The ex-

periments were commenced in the second quarry, and were to a great extent intended to demonstrate the relative advantages of powder and dynamite. They were conducted by Mr. Frazer, the manager of the quarries. After an experiment with 2 lbs. 2 ozs. of dynamite, which was successful, two "fast" shots were fired under similar conditions, the charge in one being 1 lb. 9 ozs. of dynamite, and in the other 1 lb. 9 ozs. of Curtis and Harvey's extra strong powder. Although the weight of the explosives was the same, it is only right to say that the dynamite is double the price of the powder, and that both appeared to do the work equally well. A charge of 2 lbs. 5½ ozs. of dynamite was next exploded with terrific effect. The holes in the above instances were 4 ft. deep; some "loose" shots were then fired, which means that shots were fired in loose blocks of stone, measuring 70 or 80 cubic feet each, with 1½ oz. of dynamite, 1 oz. of extra strong, and 1½ oz. of gun-cotton, and in each case the huge stones were smashed.

After some minor experiments the party proceeded to the other quarry, where a shot had been prepared by Mr. Frazer on a scale not often attempted, although on many occasions 1 ton weight of powder has been exploded there. A level had been driven in the rock 41 ft. straight, when it turned off at an angle, and was carried 15 ft. further; at the end of this was a chamber, in which was placed 1½ ton of Curtis and Harvey's ordinary blasting powder. The amount of work expected to be done by this was to displace 18,302 tons of rock. The face was 121 ft. high, and it was expected that a width of 38 ft. and a length of 60 ft. would be dislodged. After the preparations had been completed the visitors, who by this time were very numerous, were advised to retire for safety. They waited at a respectable distance during the 20 minutes occupied in burning the fuse, when the first indication to many that it had done its work was given by a complete shaking of the earth on which they stood. In an instant there was a report (not so loud as might have been expected), which was followed by the toppling over of the face of the rock, large fragments being blown to a considerable distance. The result of the shot was such as to exceed Mr. Frazer's anticipations, and at least 20,000 tons of rock was thrown down.

Mr. Wilkinson, one of the vice-presidents of the Institute, delivered a short address in the quarry, in which he said the experiments afforded them interest and instruction, and expressed the thanks of the members to Mr. Horn, the company's engineer, and Mr. Frazer, for the manner in which the arrangements had been carried out.

### PROMOTION OF SCIENTIFIC INDUSTRY.

The Exhibition of Appliances for the Economy of Labour, organised by the SOCIETY FOR THE PROMOTION OF SCIENTIFIC INDUSTRY, was opened at Manchester on Friday last, the ceremony being performed (in the absence of the President, the Earl of Derby) by Mr. HUGH MASON, who, in his opening address, remarked that the Council most earnestly hoped that the present enterprise would be fully as successful as the one held in Peel Park. The financial results of the Peel Park Exhibition had been very great, and the society had, therefore, been emboldened to launch the present greater enterprise. He would leave Dr. Anderson to speak of the great instruction which might be derived from the Exhibition, not only by the artisan classes, but by those who employed the artisan classes; and in the face of foreign competition in every part of the globe, we needed to place ourselves abreast as regarded technical instruction and the practical management of machinery with every other nation in the world. We had capital and skilled labour in abundance, and we would have only ourselves to blame if we should be left behind in the industrial race. The society was very much stronger in point of numbers than it had been a year ago, and he had no doubt that one of the results of the present Exhibition would be to considerably increase the number of its fellows, and make the Society for the Promotion of Scientific Industry a great advantage to Lancashire and the neighbouring counties.

In a highly interesting paper on "Tools," by Dr. ANDERSON, C.E., F.R.S.E., read immediately after the address, it was remarked that the correct forms to be given to materials in the construction of tools or machinery depend entirely upon natural principles. Natural form consists in giving to each part the exact proportion that will enable it to fulfil its assigned duty with the smallest expenditure of material, and in placing each portion of the materials under the most favourable conditions of position that the circumstances will admit of. Such natural form is not only the most economical, but, strange to say, it is always correct in every respect, and is invariably beautiful and lovely in its outlines. Why it should be so we can conceive, but it is a difficult question to answer satisfactorily. In the application of force to the working of machines or tools the true principle is to use or apply the force in that condition which best suits the immediate purpose, and he shows his ingenuity by its expenditure in actual or useful work with the least loss by friction, or the introduction of complicated or unnecessary moving parts. Before this society it would be superfluous to say that force cannot be increased by any mechanism that man can devise. When we have reached our highest excellence as constructors the utmost we can do is to expend force in the best way. Up to a century ago it was a popular notion that by combinations of wheels, pinions, fly-wheels, and other devices of the engineer, force could really be increased, but that delusion has long since passed away from Lancashire. Even down to a comparatively recent period the notion prevailed that it involved a waste of force to take motion from the periphery of the fly-wheel of a steam engine, yet in all the books written upon the subject, from the days of Ferguson downwards, the principle was clearly set forth that 1 lb. on the long arm of the lever was equal to the 100 lbs. on the proportionally shorter arm, or that the 1 lb. multiplied by its motion was equal to the 100 lbs. multiplied by its lesser motion. It was the deductive mind of the late Sir William Fairbairn (whose name and memory all reverence) that broke through the thralldom by which we were bound; and ever since the application of true principles, as depending on the circumstances of each case, has extended all over our own country and the world generally. As regards force itself we know nothing; all that we know of force is its effect.

The 10 lbs. of fuel per horse power per hour which pleased our fathers is already reduced in some engines to 2 lbs.; still we are dissatisfied, and thousands of earnest seekers scattered over all civilised countries are at this moment trying to get the corner of the veil to discover one of the other of Nature's secrets so as to enable other pound to be saved, and it is more than probable that before 1975 comes round the fuel required for steam-engines will be reckoned by ounces. In our era he said tools may be divided into three grand stages of development; how many stages higher they may go it is not for us of this generation to say, but we have every reason to believe from what we do know that man's work with tools is scarcely begun, that they are still the infant Hercules, just entering upon boyhood, and before him lies the great task of performing the whole of man's toil and drudgery by automatic tools not yet devised or even imagined. The vast ramification of nature's open secrets will, as time unrolls, be gradually revealed to man, secret after secret, according to his mental capacity for their reception. Tools and civilisation have come jogging along together for thousands of years, always a loving couple, and mutually helping each other during their long and toilsome journey. Tools in their first or elementary stage comprise nearly the whole of the tools of past history up to little more than a century ago, and their great distinguishing characteristic is this, that the idea which man wishes to embody in a material form does not remain in or form part of the tools. From a number of cases which were in operation during the previous 400 years, chiefly occurring in Italy, France, Germany, and England, there begins the gradual dawning of a new era in tools; an entirely new race grew out of the old race, with this wonderful peculiarity and difference, that the idea or mental conception if not merely embodied in the material form, but, in addition, the man's own mental faculties are transmitted to and remain an integral part of the tool. By this change man relieves himself from the drudgery of having again and again to repeat himself. He is not only relieved from the physical toil of using the hammer or the distaff, or other tools, but he saves his mental labour as well. There is yet a third stage of a still higher order of capacity of tools. There are modern tools which not only have ideas embodied in them like the tools of the second order, but in addition they have what we may almost call a reasoning faculty; they have the capacity of putting several ideas together, then summing up the existing conditions and arriving at a practical decision in a fraction of a second, a mental process which would occupy a learned philosopher for hours, even if furnished with all the facts of the case. Then there are other tools which are provided with a nervous system, which pervades their mechanism, whereby if any disorder of their normal condition occurs they instantly communicate the fact to a sort of brain, and stop of their own accord. Other tools perform the most difficult mathematical calculations, and are capable of printing the result, so that no error may occur in the copying.

It is interesting, Dr. Anderson continued, to consider how the Manchester district has become so celebrated for its tools and machinery. Doubtless there were many causes of a material nature which contributed to the result, but the true cause of Lancashire superiority lies much deeper. As a youth in Manchester, fresh from Scotland, now 36 years of age, I was then strongly impressed with a certain marked mental peculiarity, and after spending the interval in a public department, where there was ample opportunity of studying all phases of the working mind of this country, it appears to me that the secret of Lancashire greatness in her own tool speciality is due to the deeply inductive turn of mind which there prevails, and that the inductive habit of mind is the central pivot around which all the other causes that have combined to make Lancashire what it is do revolve. No doubt some of the peculiarities are partly traceable to the line of the Teutonic branch through which they came, their early and inordinate liking for useful work, in combination with a natural inventive faculty, which has now continued for centuries, and grown deep into the nature of the population. Few have had more opportunity of observing the character of workmen than myself, and long since I came to the conclusion that the best practical workmen on the earth's surface are the men of Lancashire. They and their fathers for more than four generations have been under a course of training for this pre-eminence. They are not only hard workers, but they have ingrained into their nature an aptitude for the performance of every sort of work requiring skill or precision. In this respect they are at least one generation ahead of any other set of people in this or any other country. This practical superiority is a consequence of the early introduction



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## Meetings of Public Companies.

## ELIAS MARTYN AND SONS.

The fourth ordinary general meeting of shareholders was held yesterday at the offices of Messrs. W. Sharp and Co., Cornhill, Mr. T. LARK in the chair.

The CHAIRMAN moved the adoption of the report and statement of accounts made up to December 31, showing a profit amounting to £1211. 12s. 1d., which the directors proposed to appropriate to the payment of a dividend of 5 per cent. The deliveries from the works during the year had been 10,730 tons, and the sales 9008 tons; the balance having gone to increase the stocks at the depôts. The increase over 1873 had not been as great as was expected, owing to the dulness in trade, both in the Potteries and amongst the paper-makers. High freights, particularly towards the close of the year, and the comparative dearthness of coal, continue to affect the profits. The depôt at Brussels had been completed, and as the works had been rendered capable of a large production of clay, no further important outlay for plant is anticipated, unless it should be considered advisable to enlarge the production of the better qualities, for which an increasing demand is springing up.

The resolution for the adoption of the report and accounts was put and carried, and the usual formal business concluded the meeting.

## SOUTH WHEAL CROFTY MINING COMPANY.

The quarterly meeting of shareholders was held at the mine on Wednesday, Mr. E. H. RODD in the chair.

The usual preliminaries having been disposed of, the accounts for 12 weeks—which showed a debit balance of £1051.—were submitted, and the report of the agents was read, and stated that the engine-shaft was sunk 31 fathoms under the 195; the lode was improving in size and appearance, and was worth for the length of the shaft (121 ft.) 18s. per fathom. The 195 contained throughout rich stones of tin, especially at the north part, and they think in about 3 fathoms further driving, or less, this lode will unite with Pryce's lode, to which Beckford's shaft was now sunk; and looking at the size and general appearance of both lodes, they think it highly probable that when the junction is reached a great improvement will take place. The 160 north lode has been opened about 5 fathoms in length. The lode in the eastern end has been rather disordered of late, but was again improving, and was producing good stones of tin. It was worth 10s. per fathom. They had commenced to drive east from the 180 from Beckford's shaft, and as soon as the cross-course was reached they would drive north at this level to intersect the north lode also. Since the price of arsenic had so much increased, they had put some men to work at the 50 ft. level at Pryce's lode, where it was worth, principally for that mineral, 12s. per fathom.

Mr. BAILEY suggested that they should make a call to clear off the whole of their liabilities, and charge up the costs as close as possible.

Capt. A. JAMES said he had observed that Capt. Teague deducted 1½ per cent. off the merchants' bills, for the principal materials used in the mine some 2½ per cent., and for fuses 5 per cent. Now, he did not see why Capt. Teague alone should have that privilege and advantage, or why the same should not be done at South Crofty and other mines. They were bound in justice to other adventurers to see that they were as well treated as in other mines.

Capt. JOSHUA THOMAS said it would depend upon what credit was taken. They gave at South Crofty drafts for 60 days.

Capt. JAMES said he had given credit taken at Tincroft and Carn Brea as at South Crofty. They took twelve months' credit at Carn Brea, and he did not see why these mines should be an exception to others in this matter.

The CHAIRMAN said they could not make such a reduction without the consent of the merchants.

Mr. BAILEY urged that the question raised was why other agents should pay more than Captain Teague does. There arose the question, were the materials as good. He was not justifying Captain Teague doing it, but he thought the matter ought to be ventilated.

Captain JAMES said there were several gentlemen in that room who had large accounts with Captain Teague, and they allowed 1½ per cent., and why not allow it at South Crofty?

Mr. THOMAS said it might depend upon the quantity. The greater the quantity the greater the inducement to allow percentage.

Mr. CARTER: These deductions have been going on for a very long time.

Captain JAMES said he would guarantee that at Tincroft and Carn Brea the prices were as low as at any mines in the country.

After some further remarks the matter was left in the hands of the pursuer, it being understood that he would see that they did not pay higher prices than Carn Brea.

## LLANRHAIADR LEAD MINING COMPANY.

The statutory general meeting of shareholders in this company was held at the offices, 86, London Wall, on Thursday,

Mr. E. HILTON in the chair.

Before the commencement of the meeting Mr. J. TAYLOR, the managing director, explained to the shareholders the position of the mine by means of sections and plans.

The SECRETARY having read the notice convening the meeting,

The CHAIRMAN said they were met in obedience to Act of Parliament, which required that a meeting should be held within four months after registration. He was glad to say that they were going on as well as could be expected for the length of time they had been at work. All the difficulties had now been cleared out of the way, and there was nothing but a straightforward course before them. They were proceeding economically and effectively. They had determined to put on air apparatus in the lower level to enable the men to get more quickly forward, as it seemed to be the great thing before them. He then read the directors' report, as follows:

Since the company has had possession of the property they have concentrated their attention on a few of the most promising points, in order to prove them and open out new ground, and they are pleased to say that the indications, so far as the work has been prosecuted, give unmistakable evidence of the great value of the mine. Nos. 3 and 4 levels have been advanced further into the mountain, and, as will be seen from the agent's report, both ends are yielding lead, and appear to be improving. Previously to this company taking the mine a winze had been sunk below No. 4 level for about 8 ft., on the south lode, which at this point is 3 fathoms below the level, but as the level below is not sufficiently advanced to drain this part of the mine, the water accumulated so as to stop the working. This being the lode, however, on which Nos. 5 and 6 levels below are driven, your directors mention the fact as proving the importance of the deep workings, and the very high probability of success attending their prosecution. In No. 4 level, on the north part of the south lode, a rise has been put up under a piece of ground in No. 3 level, which yielded some hundreds of tons of ore. It is very probable that some good stopping will be obtained here. Steps have been taken to prove the lode in the deep adit by driving a cross cut towards the footwall, but the wall has not yet been reached; if it proves unproductive the level will be driven on under the ore-bearing ground above. There can be no doubt but that your property contains very large deposits of ore, and your directors will spare no pains to develop its resources, and make it profitable to the shareholders.

The agent's report, as under, was then read:—

May 15.—South lode: No. 1 Level: This level is about 25 fms. from surface, and has been driven on the course of the lode 145 fms. In this drive and from over the level considerable quantities of ore have been taken away. The present fore-breach is in the claystone, with a beautiful flookan, and a beautiful run of mineral. No. 2 Level is 11 fms. below No. 1, and is extended west about the same distance. This level has been very productive; the lode in the forebreast has a very promising appearance, composed of friable rock, spar, carbonate of lime, and sulphur, with occasional spots of lead ore, and ought to be pushed forward by all means. No. 3 Level is about 12 fms. below No. 2. Here the lode opened out to an unusual width, consequently levels were driven on each side of the lode, both being productive of lead ore. The south end has been driven west about the same distance as No. 2. The north level is now being driven in a beautiful run of mineralised ground, yielding some fine lumps of solid lead ore. The flookan, I am pleased to say, is impregnated with solid lead, which is an indication that seldom fails. I am daily expecting an important improvement. No. 4 is 9 fms. below No. 2, and is driven west about the same distance, the lode being of about the same width as in No. 2. Two levels have also been driven on the north and south parts of the lode: 8 fms. 3 ft. have been driven by the present company on the north part of the lode, through very congenial ground for the production of minerals. The part of the lode carried is about 3½ ft. wide, composed of bastard granite, with a beautiful spar, sulphur, and spots of lead ore. This end indicates an improvement. About 45 fms. below this end or forebreast we have sunk a winze about 8 ft. on the south part of the lode. The west end of the winze is worth 3 tons of lead per fm. The lode being very porous and wet it cannot be worked to advantage under present circumstances, the deeper levels not being driven up far enough to drain this part of the mine.

On the north part of the lode in this level we have also a nice rib of ore going down, and, according to the underlie, it will meet the south part at about 20 fms. deep, when a fine course of ore may be reasonably expected. There is also a good piece of ore ground about 10 fms. west of winze, going across the lode, and this also is gone down below the level. I would remark that this is a continuation of the course of ore wrought upon in the upper levels, and must certainly be a great inducement for further and deeper development. As far as can be seen this is the most promising part of the mine. We are engaged in taking up all the water that we possibly can, in order to commence sinking; if we cannot succeed pumping machinery ought to be obtained. This winze sunk, and the deep adit level pushed on with all possible speed. We have commenced a new rise over this level on the north part of the lode, which we expect to come up through the ore ground gone down below No. 2 level. If the ore that is seen in No. 3 level holds down, we hope to open up here a good run of stopping ground; the lode in the rise is yielding a little ore, but not to value. In the deep adit level I have put two men to drive the cross cut a little further south, as no proper footwall has been met with. I am daily expecting to meet with the wall—if poor, I shall drive in the end.—North lode: As far as can be seen the Nos. 3 and 4 levels are poor, but my conviction is that there are large quantities of ore underneath the No. 4 level. A winze has been sunk 6 fms. below this level in a splendid lode with lead all the way; it is of the greatest importance that a deep level should be brought in to unwater this part of the mine. My belief is that you possess a great valuable property in the Llanrhaidr Mine. There are other north lodes which are very worthy of trial, especially one near the brook which runs down the side of the mountain; in my opinion it ought to be tried.—E. FASCOE.

Major JOHN ROSS said he thought it most important that the deep adit should be pushed forward. Mr. TAYLOR replied that they could only work for eight hours a day in consequence of the air being so bad. They had just arranged, as the Chairman had stated, to have an air-machine to draw out the foul air and ventilate the level.

Major ROSS said he did not know if all the shareholders there had been to the mine, but he desired to say what very great satisfaction he had in inspecting the premises of the mine, and in observing the thoroughly permanent and substantial nature of the buildings and all concerned about it, the excellent and good machinery which is in it. He mentioned it in case any gentlemen present might be new shareholders, and not have been to the mine. Before he went further into it he went all the way from Aberdeen to see it himself, and he found that in every way very substantial good work had been done, likely, as far as he could understand, to turn out a good concern. It recommended itself to him in this way—people were to be seen undertaking to open out mines where there were only indications that ore might be found, whereas in this case they had a property that was yielding, when he saw it, at the rate of from 15 to 20 tons per month; and they, as a new company, had the benefit of all the machinery and everything that was left over by the late company, and if anyone would take the trouble to go to Llanrhaidr and see for himself, he felt sure they would be perfectly satisfied with regard to the property they possessed in the Llanrhaidr Mine.

The CHAIRMAN, in reply to Mr. T. W. Masterman, said that the capital at the command of the company was, in the opinion of the board, sufficient to put the mine in a good state of development.

Mr. TAYLOR, replying to Lieut. Col. H. B. Scott, said the lease had about 15 years to run, being originally for 21 years; but that he had made an application to Earl Fortis for a new lease, the old one to be cancelled. He did not consider that there would be the slightest difficulty in getting it renewed when the term expired.

Mr. JOHN NASMITH said he had been several times to the mine and examined it, and it seemed a reasonable thing to expect that they should find lead there. In all mining undertakings there was a degree of uncertainty, and it was not until they had the stuff in sight that it came into the region of certainty. But he believed the mine would be a very valuable one. He had looked at it from a shareholder's point of view, and not as a director; and he would advise gentlemen who had not seen the mine to go down and look at it for themselves. He thought that if a body of ore was out, as was anticipated, the shareholders then on the register should have the first offer of the remaining shares. Those who take the risk deserve the greatest reward.

Major ROSS said there were two main features that were very encouraging—one was that the drainage could be made so effective, by reason of the position of the mine; the second was that they required no steam-power to drive the crusher. He supported Mr. Nasmith as to the disposal of the shares still unsold.

A cordial vote of thanks to the Chairman terminated the proceedings.

WEST FRANCES.—At the meeting on Thursday (Mr. W. Pike in the chair) the accounts showed a loss on the three months' working of 2761. 16s. 5d., and a debit balance of 7261. 10s. 4d. The Chairman stated that there were some extra expenses included in the present accounts which would explain some portion of the loss on the three months' working. The agents reported upon the various points of operation. Thanks were voted to Mr. Fortesque for consenting to a continuation of the reduced rate of dues (130th) for another 12 months, in consideration of the fact that the mine was not paying.

COOK'S KITCHEN.—At the meeting, on Thursday (Mr. W. Pike in the chair), the accounts showed a loss on the three months' working of 747. 16s. 8d., and a debit balance of 13801. 1s. 1d. The Chairman pointed out that since the last meeting the deficit had been reduced by nearly 5000l., and that the reduction in the price of tin has made a difference of about 2000l. in their calculations. Last time it was considered necessary to make a call of 10s. per share, but on the present occasion he thought a 5s. call would answer the purpose. Capt. Josiah Thomas read the agent's report, and added that the agents had been doing all they could to open up Dunkin's lode as rapidly as possible. As the report stated, they had, since the last meeting, succeeded in driving and sinking upwards of 50 fms., which was a very large quantity to open up, and he did not see any reason to doubt that they should open up a large quantity of moderately productive ground on that lode. It was not a large nor a very rich lode, but it was fair ground for stopping. It was only about 10 months ago that they cut it, and since that time they had driven the shaft from the 160 to the 100. They had had some little change in the shaft. There were some fine stones of tin and little branches from the south, looking as if it had something to do with Dunkin's lode, at any rate they were getting near its influence. They had spent a good deal of money in opening ground, especially in Dunkin's lode. The report and accounts were passed, and it having been unanimously decided to make a 5s. call, the meeting separated.

## NEW QUEBRADA MINING COMPANY.

The report to be submitted at the forthcoming meeting states that the issue of 30,000l. 8 per cent. debentures at par, sanctioned by the last general meeting, has been taken up by the shareholders to the extent of 20,550l., and as arrangements had been made with a house of high standing by which the remaining 9450l. is at the disposal of the directors when required, it is not proposed to make any formal offer of the remaining debentures, but the directors will, so long as any of them remain unsold, be prepared to give preference to any shareholders who may apply for them. An agreement, which the directors consider a fair and advantageous one, has been completed with the Bolivar Railway Company, for a tentative alteration of the terminus from Brava Island to Tucacas. The railway works have for some time been progressing with great activity. The last accounts report the weather and an abundance of labour for the requirements of the contractors. The directors are given to understand that the only really heavy portion of the work, with the exception of the upper three miles, is in an advanced stage of progress, and they have reason to believe that the earthworks are by this time virtually completed to a point nearly 35 miles from the coast. Work at the mine has not been so rapid as could have been desired, but the directors have increased the number of skilled European miners, and have every reason to believe that far greater progress will now be made in training native labour, of which there is an improving supply. The last advances are that the opening of the mine has so far advanced as to admit of the extraction of a considerable supply of ore. The directors have the assurance of the superintendent that the arrangements now made for the prosecution of the mining works, will, by the end of the present year, provide a daily supply of ore fully commensurate with the requirements of the contract with the railway company. Mr. Consul Hemming has consented to accept the office of managing director, and they do not doubt that his well-known energy and ability, aided by his great experience and long devotion to the interests of the company will render the appointment a very acceptable and advantageous one to the shareholders.

[For remainder of Meetings see to-day's Supplement.]

## Original Correspondence.

## NEW QUEBRADA COMPANY.

SIR,—The vague information which has been so scantily doled out to the shareholders by the officers of this company as to the progress of the works during the last six months, has made the report of the directors to be eagerly looked for. It is now in our hands, and whether the information it contains will be such as to satisfy shareholders, and allow them to rest and be thankful for another 12 months, will depend upon the peculiar idiosyncrasy of each reader as to the bounding limit which governs his measure of contentment. Some are satisfied with small mercies, others require more tangible gifts.

Certainly the report is a most compact one, and, excepting to the Quebrada Company in its corporate capacity, it is not likely to prove inconvenient hereafter to anyone who has been connected with its composition. It says the board has completed successfully the loan which it required. It has advantageously given up the right to have a good port and harbour to its property. The earthworks on the railway have reached nearly 35 miles. The mines are being opened up, and by the end of the year the directors are informed they will produce ore to supply the railway on terms of the contract; and finally, although they have already a consulting engineer, a consulting mineralogist, a secretary, and a deputy-secretary, they have appointed Mr. Hemming their managing director.

This is absolutely the whole report. Well, if the board will only spend the loan judiciously and economically, I am sure shareholders will rejoice equally with them at the successful way in which they have got the money, if they can show that having a port and harbour are only very slight advantages to an estate like ours, and could be abandoned without any inconvenience or loss to the company, no one will find fault. If they can induce the Bolivar Railway Company to expedite the completion of the railway, and make greater progress than a mile each month, as they have hitherto done, I am sure the shareholders of both companies will be satisfied, and will expect to see ore in England in less than two years, which will not be the case if no more progress is made than heretofore.

If the superintendent at the mines will show the directors by something more definite than his assurance, communicated through another officer, his hopes for having a supply of 2000 tons a month within six months everybody would rest content.

As to the last statement of the board, I am sure every shareholder will look upon this as the most important one. Assuredly of late we have had too many irresponsible officials. If we had had fewer I think we should have had more certain information as to the progress of the works. Everyone is bound to acknowledge the extraordinary energy of Mr. Hemming, and all connected with the company know that he possesses more knowledge and information as to the history, the constitution, and the objects of the company than any other man in existence. His knowledge of Venezuela, of our estate, our mines, and all connected therewith is not surpassed by any other person, hence I think this is undoubtedly the most important paragraph of the board's report, and the best act they have accomplished. If his colleagues do not hamper him with absurd restrictions, and limit his energy and ability, if he is not tram-

melled with the fear of treading on the toes of other officials, if they will let him devote himself wholly to his duties for the next 12 months, and above all if, by proper remuneration, they make it worth his while to concentrate his energy, his ability, and his mind to the company's affairs. I have little doubt in a very short time a much more satisfactory state of matters will exist both with the board itself and with the shareholders generally, who will then know not only how matters are really progressing, but they will be conscious they are directed and seen to by an officer who never spares either himself or others in carrying out those measures which will best secure the success of the company. W. F. P.

[For remainder of Original Correspondence see this day's Supplement.]

THE CLOGAU COMPANY (GOLD), DOLGELLY, NORTH WALES.—The directors of this company visited the mines on Monday last, and received two bars of gold, weighing together 60 ozs. 3 dwts. the result of the clean up from the last three weeks' working of the small trial pans. The quantity of quartz crushed since the last clean up, on the 24th ult., is as follows:—Week ending May 1, 237 lbs. first quality ore; ditto May 8, 510 lbs. third quality; ditto 15th, 758 lbs. second quality: the total being 137 dwts. 1 qr. 21 lbs. of quartz, yielding 60 ozs. 3 dwts. of gold retorted and melted. The third quality quartz was crushed for the purpose of testing its richness. The result was quite satisfactory, showing an average of 10 ozs. of gold per ton of quartz. The mine is looking remarkably well, and large returns are looked forward to with confidence. Part of the machinery has already arrived at the mills, and its erection is being pushed forward with all possible speed.

## MINING NOTABILIA

[EXTRACTS FROM OUR MINING CORRESPONDENCE.]

CHAPEL HOUSE COLLIERY.—We understand that the directors' report and accounts will be issued in the early part of the coming week. Since the commencement of the company the gross profits to March 31 (the day of issuing the books), amounted to 32,217l., the amount of coal dealt with having been over 129,000 tons. After making all charges against profit and loss, such as dividend, items written off for wear and tear of plant, office expenses, interest, law expenses, and printing, there remains an undivided balance of over 11,000l. The output at present is about 6500 tons per month, and the total profits for a like period about 15000l. to 16000l. The new works are going forward satisfactorily, and bricks are being made at the rate of 60,000 per week; when everything is completed this will, it is believed, be one of the finest collieries in the district.

COURT GRANGE.—The latest news from the mine captain, under date May 20, shows an important improvement in the lode in the new Bregian 12 ft. level.

AT WHEAL GRENVILLE they are still cutting through the lode at the 130 from North shaft. The lode is now worth 20s. per fathom for tin, and is also producing some rich yellow copper ore.

OLD TINCROFT.—In the 30 west lode is worth 10s. per fm. The rise in the back of the 20 is worth 6s. per fathom, and in the 10 west 7s. per fathom. It will be seen that profitable ground is being opened up, and it remains only for the company to put up proper stamping power to make considerable and satisfactory returns, and it is probable that the time is not far distant when the company may be able to divide profits even with the present depressed price of tin.

WHEAL GILBERT.—A discovery of tin has been made in Wheal Gilbert, in Lelant district, which promises to be of magnitude, and if these discoveries continue to be made in new mines it must tell in many ways against the deep and expensive ones. To prove that the spirit of enterprise has not altogether died out the application for tin sets continue, and at present prices mines ought to pay very well. It is to be hoped, however, that tin will, notwithstanding all gloomy forebodings, advance in price, so that both young mines and old mines may at once be benefited. At present, however, a decided preference for young and shallow mines is in the ascendant. The discovery of tin at Wheal Gilbert may lead to very important results as far as the district is concerned.

EAST POOL.—This mine is now the most profitable in the county of Cornwall, and continues to present evidence of long continuance. The 150 east is being carried 9 ft. to 10 ft. wide in a part of the lode, and seeing that this is, in which a plat has been cut at the bottom of Wheal Agar shaft 12 ft. wide, with any wall, is conclusive there is more tin ground above and below this than will be beaten away during the present generation. The 150 east, near Agar boundary, is looking much richer than it has for a long time. The south lode continues to turn out a large quantity of stone, composed of arsenical mundle, tin, and copper. There is upon this lode an almost unlimited supply of this stone.

WHEAL AGAR.—The sinking of the shaft has been resumed, and six men are driving the 187 east in a large lode.

## ECHOES FROM THE MINING MARKET.

The tin share market still remains in a very inactive condition; but a certain steadiness has been apparent in the metal throughout the week. Although there is so much dulness in Cornish shares, the fluctuations have been unimportant, which has been probably due more to want of actual business than to anything else. A dividend of 5s. per share has been announced from Tincroft, which may have some influence on the market. The principal business of the week has been confined to colliery and lead shares. In the former, Chapel House continues to attract considerable attention from investors. Extreme heaviness has been noticeable in Cardiff and Swansea shares, owing to the issue of some very damaging circulars on the part of the chairman of the company and one of the vendors. Like all rival disputants who commit their wrongs to print, the most complete divergence of opinion is apparent in the rival documents, and we should fancy the shareholders must by this time be completely bewildered. The *controversy* is much to be regretted. It has had the effect of reducing the shares to just 10s. per cent. discount. With 11 paid they are selling at 31. 10s., so the 11 call lately made has already been rather less than they were with 6d. paid. Enquiries have existed for United Bituminous shares, which are quoted about 5s. It is said the Weig Colliery is looking better; but we have not heard whether the water difficulty has been surmounted yet. In lead, West Chiverton has been the mine of the week. These shares continue to advance, and are now quoted 13s. 14s., and close strong buyers. The latest advances are of a no satisfactory character, but as to the present aspect of the mine and forthcoming sales of produce, Plynlimon has also had a good market, and we understand matters are looking encouraging at the mine. The shares are still at a purely nominal price. A better business has lately been done in Assheton shares and in Pennerly, which is to give a dividend shortly.

The copper market has not shown any change of importance, but there has been a tendency towards rather lower figures. The statistical position of the metal is, however, still strong, and stocks on hand are reported to be about the same as in the beginning of the year. The reduction in coal and iron referred to last week appears likely to be further augmented—a great boon to our mines, especially at such a time as the present, when every alteration for the better is of inconvertible value.

The following are the principal gleanings of the week from the country. There has been no dividend at Carn Brea. Although a profit of 12000l. was made on the quarter, the thirteenth month had to be charged up, and this turned the apparent profit into a loss of 757l. The balance has been reduced to 4308l. The mine appears to be looking well, although the accident that occurred some time since to the shaft in the eastern part has not yet been overcome. It has prevented drawing stuff from a very promising lode, and it is expected that quite three months more must elapse before the shaft will again be in thorough working order. The lode in the engine shaft at Cathedral, sinking below the 30, is worth 25s. per fathom; an end is valued at 28s., and a winze at 20s. per fathom. Crenver and Wheal Abraham has not been able to surmount its difficulties, and will go into the Stannard Court, after all. We hear, however, a scheme is afoot to re-construct. An enormous sum of money has been expended here. A call of 10s. per share is expected at the next meeting of Cook's Kitchen. The points now being operated upon in New Consols are said to be looking well, and to be producing fair quantities of mineral.

The improvement at New Hendra continues, and some pretty grey and black copper ore is still being sent up. The men are making good progress in driving the adit; the ground is more favourable, and the mine throughout is looking well. Seven pitches have been set in New Rosewarne to 22 men, at an average tribute of 13s. 2d. in 12. At North Pool the lode in the 40 east is now 4½ ft. wide, and is producing some rich stones of yellow copper ore. North Trekerby has at last held Scorrier Consols, and is about to send away some parcels of tin and copper. Two ends in Old Tincroft Consols are worth 14s. per fathom, and a rise 4s. per fathom. In Old Treburtet there are two ends, worth 24s., and a rise 4s. per fathom. A sale of lead has been made here, realising 1241l. At Pedn a dross the water is down to the 140. Nine ends are valued at 96s. per fathom, and a winze 7s. Some pitches have been set at an average tribute of 10s. 3d. in 12. Some stones of tin have been seen in Treva rack. At West Godolphin the seven ends valued are worth 70s. per fathom. There is a prospect of West Seton resuming dividends before very long. The lode has met the adventurers in such a liberal spirit that the mine will now be worked vigorously. Full liberty has been given to the importation of coals—an important concession. The slopes in West Polgas are yielding well; two produce 6½ tons of copper ore per fathom, whilst a rise is yielding 1 ton. The recent improvement in South Crofty still holds good. No call was made at the meeting. At South Carn Brea the sinking of the pump (i.e., the lowest) has been resumed. The cost is said to be 15s. per fathom. The 164 west has now been drained. The West Basset meeting will be held next week. There are some rumours as to the liabilities being very heavy here.

Rosewall Hill has four ends worth 38s. per fathom. The lode at Wheal George shaft, at the Prince of Wales, is worth 4 tons of arsenical mundle per fm. Shares in St. Aubyn United Mines have lately changed hands at 10s. At Providence Mines, should the lode in Hawk's part continue to open up as well as at present, the manager hopes to raise sufficient tin to pay cost at the present price. The average price of tin received during the last four months has been about 3s. 15s. per ton less than during the previous four months, and has made a difference of over 2000l. against the mines. The loss on the last four months' working has been 3677l., reducing the credit balance to 33s. only. St. Just Amalgamated has gone into the Stannard Court. The miners have received a month's wages, and will shortly be paid in full. It is difficult to say whether the mine will go on again; the times are certainly against a resumption of work.

In the foreign share market Eberhardt has been weaker, but Richmond has been firmly supported. In other shares there has been but little change to notice. Fort Phillips have, however, again been in request. JAMES H. CROFTS.



MAY 22, 1875.

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## FOREIGN MINES.

**ST. JOHN DEL RAY MINING COMPANY (Limited).—**Advices received May 3, 1875, per Minho (S.), dated Morro Velho, March 29:—  
The produce extracted during the second division of March, being a period of 11 days, amounts to 15,116-4 oits. It has been derived as follows:—  
From mineral stamped..... 14,049-0 from 1472 = 9-544  
Re-treatment..... 1067-4 " = 735  
Total..... 15,116-4 " = 10-269  
Oits. Troy. Oits. Troy per ton.  
Or 15,116-4 = 1742-6740 = 10-269 or 1-1835

The stamps during the above division worked an average of 23-58 hours per diem, reducing each stamp head at the rate of 1-274 tons of ore. The daily produce gives the high return of 1574 oits., the result of the working of 103 heads.

The standard yield is higher than usual, 10-269 oits. per ton, as we have been rejecting kilns, and stamping almost only pure mineral. The results of the Morro Velho, April 1.—MEASUREMENTS OF EXCAVATION: The results of the sinking, driving, and stopping to the end of the month of March are shown by the following measurements made in the mine to-day:—  
Fms. ft. in.  
The shaft has been sunk vertically..... 1 0 0  
Driving length of excavation..... 33 0 8  
Present length of shaft..... 4 4 0  
There are at present five stopes—viz.:  
No. 1, height above the shaft..... 2 4 0  
No. 2, height above the first..... 2 1 0  
No. 3, height above the second..... 2 2 6  
No. 4, height above the third..... 2 2 8  
No. 5, height above the fourth..... 3 1 5  
There is, therefore, now fair stopping ground.

Advices received May 19, per Boyne (S.), dated Morro Velho April 17:—  
GENERAL OPERATIONS.—The work in the mine of sinking, driving, and stopping has gone on with regularity during the past fortnight, the sinking not being retarded by the extension of the hauling shaft over the sump. Adjacent to the western end of the mine is being cleared down from the north wall, and this has lessened the amount of quarrying of mineral in that section; otherwise, the general duty has been satisfactorily performed.

At surface the most important work being carried on is the reconstruction of the Lyon stamping-mill, on the site the old one occupied. This work is going on with spirit, and good progress is being made by the large force of mechanics engaged on it.

**WORKING FOR MARCH.**—The gold extracted during the month of March has amounted to 41,105-8 oits., being equal to 4738-8301 oza. troy. It has been derived as follows:—  
Oits. Tons. Oits. per ton.  
From mineral stamped..... 38,142-5 from 4159 = 9-171  
Re-treatment..... 2,963-3 " = 0-712  
Total..... 41,105-8 " = 9-883  
Oza. Troy. Oza. Troy per ton.  
Or 41,105-8 = 4738-8301 = 9-883 or 1-1394 per ton.

The above produce shows a little higher standard yield of gold—9-883 oits. per ton—than was obtained in February—9-449. The daily gold return is also better, being 1360-9 as compared with 1200-9 per diem.

Some kilns have been set aside on the spalling floors, though not actually rejected from them in March, and this tends to improve both the standard yield and daily return from the stamping mills.

The unrecruited gold contents, as per Table of Assays, is shown at 1-208 per ton. The sand treated by amalgamation has amounted to 4236 cubic feet, which yielded 9-04 oits. per cubic foot.

The mineral reduced by 105 heads amounted to 134 tons per diem. The duty in the department in March has been, on the whole, well performed.

**MINE DEPARTMENT.**—There has been a good supply of water for working the pumping and hauling machinery during the month of March, and a very good attendance of natives and borers, 144 wagons of mineral have been quarried, hauled, and delivered on the spalling floors, being the largest quantity accomplished in any one month since the re-opening of the mine. This gives a duty of 52-62 wagons for each borer employed during the month.

The pump has been sunk 6 ft. vertically, this work having been a little retarded by the extension of the hauling shaft over the sump, and quarrying back a new sump stop.

The driving westward amounts to 2 fms. 0 ft. 8 in.

Throughout the mine the work has been very well carried on, and the hauling uniformly effected without any hindrance or interruption.

**COST AND PROFIT FOR MARCH.**

The produce being..... 41,105-8 oits.

Deduct loss melting into bars..... 496-3 "

40,609-5 at 7s. 9d. per oit. = £15,736 3 7½

Cost, less profits received in reduction of the same..... 6,148 14 9

Profit on the working for March..... £ 9,589 8 10½

The cost for the month is about the same as was incurred in January, which had the same number of days, and included extra expenditure. There has been, and will continue to be, a good deal of extra timber required and labour incurred in the erection of the New Lyon stamping-mill. An increase of timber becomes unavoidable for the hauling and other timberwork within the excavation, so that our monthly expenditure should now be necessarily increased while these heavy works are in progress. Still the profit cleared for March is creditable, and is perhaps more than could reasonably be expected with our present appliances and at the present stage of re-opening the mine.

**GOLD EXTRACTED TO DATE.**—The gold extracted during the first division of April, being a period of nine days, amounts to 13,013 oits.—1500-7636 oza. troy. It has been derived as follows:—  
Oits. Tons. Oits. per ton.  
From mineral stamped..... 12,122-8 from 1227 = 9-879  
Re-treatment..... 890-2 " = 0-729  
Total..... 13,013 0 " = 10-608  
Oits. Troy. Oits. Troy per ton.  
Or 13,013-0 = 1300-7636 = 10-608, or 1-2230

The foregoing produce shows an improved yield on previous months' returns as regards the gold contents of the mineral treated. It gives a daily produce of 1447 oits. The general work is going on with regularity.

Branchitis is rather prevalent from the rather sudden changes of the atmosphere.

The gold trove was dispatched from Morro Velho on April 14, taking 17 boxes containing 50 bars, weighing in all 78,035-2—8996-1848 oza. troy for shipment per Dours (S.) for delivery in London.

N.B.—The gold has duly arrived.

The following telegrams have been received—viz.:  
On April 18, produce 31 days (month of March), 41,000 oits., yield 9-8 oits. per ton. All going on well.

On April 24, produce 9 days (first division of April), 13,000 oits., yield 10-6 oits. per ton. Profit for March, 9500l. General work in mine and on surface going on well, and satisfactory duty being accomplished.

On May 6, produce 11 days (second division of April), 17,250 oits., yield 10-9 oits. per ton. All going on well.

On May 19, produce 10 days (first division of May), 17,000 oits. Produce for the month of April, 47,000 oits.

**DON PEDRO NORTH DEL RAY.**—Report for March: Produce and Cost. Produce, 1176 oza. troy, at 5s. 6d. per oit., 4336s. 5s. 6d.; cost, 2785s. 5s. 6d.; profit, 1551s. First division of March, 577 oits.; second division, 772 oits.; remittance (one month), 11,929 oits. bar gold. Telegrams: The following telegram from Rio, May 7, referring to a later date than the above advices, was received on the 8th inst.:—Produce cleaned up (on account of April) 11,700 oits.; estimated total for the month (April) 13,600 oits.—Special telegram, dated Rio de Janeiro, May 14: Total produce for the month of April, 14,900 oitavas, value 6332l. [Office Note.—The regular telegram advising the profit for April and the produce for the first division of May will be due about the 23d inst., but the produce above advised should leave a profit of not less than 3500l.]

**TOLIMA.**—The Frias February returns show a profit equal in sterling value to 628l. 17s. 1d. The underground agent announces that a good quarry has been discovered near the mine, and is being utilised. All the surface works are progressing satisfactorily.

**MINERAL HILL.**—Mr. Hoskins, the superintendent at the mines, writes (April 26):—We have raised during the week 30 tons of ore, of an average grade of 440 per ton.

**RICHMOND CONSOLIDATED.**—Cablegram from the Mine of Eureka Nevada:—"Hall, London: Week's run, 30,000 tons. Two furnaces; third just started."

**CEDAR CREEK (Gold and Water).**—T. B. Ludlum, April 26: Since my last we have had a continuation of the warm weather reported at that time.

The snow on the mountains is melting very fast, and the water is passing off in immense volumes down the streams which head near the summit. Our main ditch, which takes up the water of several tributaries of the American river, and conveys it down and empties it into Canyon creek, is running full, estimated to convey about 2100 running inches. This is our present water supply, as all of our lower ditches are comparatively dry of natural water. This season demonstrates the necessity of increasing our storage capacity in the mountains. Notwithstanding the few showers we have had, there has been sufficient water fallen to fill almost any number of reservoirs, if properly situated, and we would have had no trouble in saving sufficient to keep our main ditch running full for 12 months. I intend to reserve the water in our three mountain reservoirs to extend the washing in the Yankes after the ditch commences to fall, thereby hoping to continue washing in that claim till near Sept. 1, provided I cannot buy any. Herewith I forward a diary for last week. Therein you will observe that I have cleaned up in the Central, Clay Tunnel, and Jehoshaphat claims. During next week I shall probably receive the mint certificates, and in my next will give you the actual product. You will observe that we have been making splendid headway with the Yankee tunnel, considering that we are only working one shift of men. The Jehoshaphat and Central claims are reeling. The Pacific is washing, and I intend to clean up in this claim during next week. The Yankee is washing, doing all that men, powder, and water can do under the circumstances.

**BLUE TENT (Gold).**—E. B. Eddy, April 22: I did not get time in the hurry of cleaning up and putting in blast to write you as soon as I promised, but do so now at my first opportunity. On the 17th we proceeded to start the powder drift, and to clean up at the South Yuba, as I wrote you I intended doing. We had run just seven days, and cleaned up \$5000. I have not got the returns from the bullion forwarded to Prof. Price, but it will vary only a few dollars from \$5000. In regard to your enquiry as to the future prospects of the South Yuba, I will say our daily returns for water used will certainly be better than here up here this week, and we will then go into this matter fully together. Notwithstanding the great disappointments from this claim, both last season and this, I have no hesitation in saying it will yet redeem the past, and come fully up to our greatest expectations in the future. It is impossible for anyone not on the ground to conceive the trouble we have been through this year. We are only now just out of danger, and on solid ground; we had great trouble in getting drifts run for our last blast, and in setting it loaded; we fired it to-day at 1 o'clock, and it did splendid execution. We shall replace the giants and commence washing again to-mor-

row. We are getting along fairly with the east pit in Enterprise, but only slowly with the west pit since I last wrote you. We shall be through with the worst of our trouble to-morrow, however, which was only an immense slide of the top stratum of pipe-clay and surface that came down last Monday. I shall clean up all the under currents in Enterprise during the coming week, and shall run the flumes as long as the paving will last.

**INDEPENDENCE (Gold).**—No further advices have been received from Mr. Kitto. It is, however, believed that he reached the mine about April 28, so that a letter may be looked for early next week, with the result of his first inspection of the property.

**SANTA BARBARA (Gold).**—The directors have advices from their manager, Mr. Hille, dated Paris, April 14, reporting an improvement in the quality of the lode in the principal stopes. The quantity of mineral stamped during the month of March was 786 tons, yielding 2793 oits. of gold, equivalent to 3-553 oits. per ton; value of 2793 oits. of gold, at 8s. 6d. per oit., 1187l. 8s. 6d.; working cost for March, 924l. 7s. 11d.; profit for the month, 262l. 12s. 7d. The expenditure for the month also includes heavy repairs to Larva Velho water-course, which are exceptional. The expenditure on the new stamps and spalling floors during March amounted to 119l. 16s. 6d.

**GOLD RUN (Hydraulic).**—J. A. Stone, May 1: The tunnel measures 666 ft., they having driven it in April 135 ft., which leaves 185 ft. yet to run before I commence raising my incline. I think they will complete the tunnel about June 10. I have ordered for 4000 ft. of blocks delivered at the shaft at 10 cents per foot, which is ½ cent per foot cheaper than the Miners' Ditch Company pay for theirs. I shall in a few days order the lumber for the sluices, and get everything ready for the first water. I shall make the best possible terms for water, and will then advise you.

**TECOMA.**—The directors have advices from the company's superintendent to the effect that he has taken possession of the property on behalf of the company, and finds it all in good condition, and apparently well cared for. He states that the mine gives favourable indications, and that the furnaces are at work. It would, therefore, appear that the company is now truly in possession of its property, and that work is going on for its benefit.

**ALMA AND TIRITO.**—Advices have been received from the mines to April 2. The new discovery in the tunnel end north, towards Dios Padre, referred to in the Journal of the 9th inst., still holds out good prospects. The Palmerston has been loaded with 300 tons of ore, of the estimated net value of 7500l., and the Crystal and Guaymas are daily expected, and would take 500 tons in addition, which were already at Agiabampo, of the value of about 10,000l. In addition to this 120 tons of crushed ore are at Mazatlan, of the value of about 2400l. The Pasha has arrived at Havre with 60 tons of concentrated ore, which is ordered to Swansea: \$15,000 arrived by the last West India steamer, and have been sold for a net sum of 5913l.

**CHONTALS CONSOLIDATED.**—W. Smedley, April 5: During March 1621 tons of ore were crushed, producing 303 oits. of gold, being an average of 3½ dwts. per ton; gold valued at 822l.; cost for the month 818l. This cost includes 50l. expenses for the erection of plant, and 45l. for stock of firewood.—San Sebastian: I am glad to say that a few days ago we met with an entire change in the lode in No. 2 level, which is now worth quite 5 dwts. per ton, and looks exceedingly well; we have had a very long stretch of very poor ore in this mine, and I fully believe that we are entering on another shoot, which I trust will continue. The quantity of quartz reduced has been 326 tons, and the yield about 3½ dwts. per ton.—Santo Domingo: There is no change to report in this mine; on account of the holidays during the past month we have been unable to do much towards opening up the east end. The quantity of quartz reduced has been 434 tons, and the yield about 3½ dwts. per ton.—San Benito: But little has been done towards completing the new cross-cut, the whole of the available force being employed in obtaining quartz; the quantity obtained has been 430 tons, and the yield about 4 dwts. per ton.—Estrella: We have not yet found the lode west of slide; the ground continues very wet and difficult to drive, facing boards being required; our progress is, therefore, slow. The quantity of quartz extracted from the stopes has been 338 tons, and the yield about 4 dwts. per ton.—San Antonio: During the past month the old level on the course of the lode has been widened and re-timbered 10½ yards; the lode having been stoped over the portion we are at present repairing, but little quartz can be obtained; in about a month I expect to be under solid ground, when a larger quantity will be attainable; the amount reduced has been 93 tons, and the yield about 5 dwts. per ton.—Consuelo: The tramway connecting this mine will be completed in about three days, and I think there is no doubt that by next mail I shall be able to report to you on the state of the lode in this end. Mining work has now set in, we are using steam power regularly. The frame work for the pneumatic stamps has been made and fitted at the St. Domingo establishment; it is now completed, and will be erected at Estrella during the present month. A portion of the heavy timber necessary for the repair of the wheel pit has also been obtained; a contract has been let for the water race, and fair progress is being made with it; the whole of this work will be pushed on as rapidly as possible.

**RHENISH CONSOLS.**—Capt. Sweet, Madonna, May 15: The enlarging of the pit at the 25 is completed. The drivages on the lode and the sinking of the shaft will now be carried on with full force. As but little has been done in the ends since my last report there is no alteration to report. The western end on the north part of the east and west lode is letting out a pretty deal of water, and in my next report I hope to be able to state that we have found the continuation of the north and south lode. At the end of next week we shall make our sampling for May 800 centers (40 tons) of glazing ore.

**MENZENBERG.**—R. K. Roskilly, May 19: Dickin's Engine-shaft: The 45 is extended west of cross cut 21½ fms.; we have cut through the Dickin's lode here, which is 7 ft. wide, a fine promising-looking lode; and in passing through the same it produced some good stones of copper ore; the ground to the west of it is much improved in appearance and character, and during the week good progress has been made. The lode above the main shaft is rich in copper, to reach the main (St. Joseph) lode, which in the adjacent mine is rich in copper; therefore, on its intersection here we anticipate meeting with equal results. No other change calling for remark throughout the mine.

## METALLURGY: THE ART OF EXTRACTING METALS FROM THEIR ORES.

Much as Great Britain is indebted for her prosperity to her metallurgical industries, it is but a few years since that Mr. John Arthur Phillips's Manual was the only work upon the subject in the English language, but Dr. Percy has now made an important addition to our metallurgical literature. The series of volumes, the issue of which was commenced by the doctor in 1861, have for some time been out of print, or withdrawn from circulation; but judging from the first volume of the new series now under consideration, the work has been so vastly improved in re-casting it, that there will be little regret that the former series are not available. The present volume\* embraces all the general portion of the subject dealing with the leading physical properties of metals, the general nature of metallurgical processes, slags, refractory materials, and fuel; and, as the author truly remarks, is not merely a new edition of what has been previously published by him, but is in a great measure a new work, containing more than 300 additional pages of fresh matter, and several articles on fresh subjects.

As the question of the utilisation of peat, and the possibility of substituting it for coal in metallurgical and other manufacturing processes, have of late particularly engaged public attention in this country, he has collected such evidence as may enable the reader to arrive at a satisfactory judgment on that question. Glowing prospectuses, he remarks, have from time to time appeared inviting investments in peat utilising schemes, which may mislead the unwary and prove financially disastrous. The failure of such schemes has unhappily been too often recorded; yet, in Dr. Percy's judgment, there is a future for peat, but only under particular conditions, which, he says, specifies, although there appears to be no direct statement in the book as to the manner in which peat working can be made remunerative. Ample information is given, however, as to the nature and mode of occurrence of peat and its varieties. As to the antiquity of the peat, he says it is certain that peat exists which is of great antiquity in the historical but not in the geological meaning of the word. Roman roads have been found covered with peat 12 metres in thickness, of which it has been computed, though not demonstrated, that the annual growth was at the rate of 6 to 8 millimetres. In sinking a well near Rotterdam no fewer than seven beds of peat were discovered, each several metres thick, and the lowest at a depth of 35 metres. But the rate of growth of peat is probably subject to considerable variation according to local conditions. As an instance of rapid growth, he mentions the fact that in a locality in Ireland where water covered the ground 30 years ago, as shown in the Ordnance map of that date, there is now (April 1872) a bed of peat 15 ft. thick, over which a railway passes. In connection with the use of peat, it is remarked that when broken flat bricks of compressed peat are thrown into a fire place they fall over one another on their large surfaces, so as to impede more or less the passage of their through the furnace, and to prevent the convenient compressed peat has for the last 15 years been manufactured in Southern Bavaria in the form of round balls.

The chapter on Coal is equally full and interesting. The old dispute with reference to the Torbanhill coal is first referred to, in which the judge pointed out that the scientific opinions were worthless because so conflicting, and that the question for the jury was whether it was coal in the language of those persons who deal and treat with that matter, and in the ordinary language of Scotland? The jury determined that it was coal, and this view all the scientific opinions in the world will not alter. To attempt to bind men of business by the complexities of men of science is simply absurd, although scientific accuracy cannot be too strongly urged among men of science themselves, and in the lecture room, provided it be well understood that the scientific and the popular, or commercial acceptance of a word is not necessarily the same. This is especially the case with regard to such matters as coal and other materials, the composition of which is not always identical. It is less than a year since there was noticed in the Mining Journal an educational book, the author of which declared, not that the Torbanhill coal is not coal, but that coal is not a mineral, and that the Torbanhill coal is not coal, but a combustible substance varying in colour from dark brown to black, opaque except in extremely thin slices, brittle, not fusible without decomposition, not sensibly soluble in ether, benzene, chloroform, or oil of turpentine, not containing sufficient earthy matter to render it incapable of being applied with advantage as a source of heat, either in ordinary fire-places or in furnaces. Most persons will agree with the doctor that this may be a near approach to a definition of coal, but perhaps fewer will consult it during a negotiation for the leasing of a coal property. The origin and formation of coal is described, and in the article on the microscopic examination of coal, it is shown that what Dr. Bennett mentioned as conclusive evidence that the Torbanhill coal was not coal, is shown by Dr. Dawson to be a strong argument that it is coal. It is pointed out that the geological age of coal is not ascertainable from physical and chemical characters. Referring to the metals occasionally present in coal, Dr. Percy states that Daubree found from 0-08 to 0-2 per cent. of arsenic in ordinary specimens of lignite from the tertiary strata of Lobsam, Lower Rhine; 0-003 per cent. in the carboniferous coal at Saarbrück; 0-045 per cent. in the lignite of Valenciennes, and in the article on coal occurring in Ville, Bas Rhin, in France; and he detected traces of arsenic and antimony in coal from Newcastle-on-Tyne. Dr. Angus Smith discovered arsenic in the iron pyrites of 15 specimens of Lancashire coal, and of a few others. Dugald Campbell found arsenic, and in one or two instances, copper in

the iron pyrites of coal. In his own laboratory decided traces of arsenic have been detected in a coal from Nottinghamshire, and of copper in anthracite from South Wales. He has a specimen of coal from Bedworth, in Warwickshire, which contains galena in a concretionary form, and he is indebted to Lord Wharfedale for beautifully crystallised specimens of the same mineral embedded in coal from Yorkshire, and to the late Mr. Ebenzer Rogers for a specimen of galena in a thin vein of crystallised carbonate of lime, which traversed a coal seam at Abercarn, in South Wales. The British coals here mentioned all belong to the carboniferous system.

The various process of making charcoal and coke are carefully and fully explained, and there is a large amount of information with reference to peat charcoal, and as the conclusions which may be drawn for practical guidance from the facts which he has collected, Dr. Percy states that peat in its early stage of formation, or that which occurs near the surface of the bog, consisting as it does of only the tangled and but little changed remains of its parent plants is unsuitable for carbonisation in its ordinary air dried state, because the resulting charcoal has a very slight coherency. The converse of the last proposition is, therefore, true, or in other words peat becomes more and more fit for carbonisation in proportion to the obliteration of the structure of its parent plants, and to the difference in composition between it and the organic substance of those plants. The denser and more compact the peat is made by pulping and moulding, or otherwise the more coherent and better *cateris paribus* will be the product of its carbonisation. Moist peat is stated not to be suitable for carbonisation, because, irrespective of the prolongation of the process from that cause, it produces an enormous quantity of peat dust. It is hardly necessary to remark that peat intended for carbonisation should contain as little fixed inorganic matter as possible, especially iron pyrites, when it is desired to use the charcoal in metallurgical operations in which sulphide of iron would be injurious. By a judicious selection of peat and suitable treatment, peat charcoal might so far as relates to its capability of producing heat serve as an efficient fuel in certain metallurgical operations. The use of peat charcoal for fuel must in a great measure depend upon the cost of its production, inclusive of the cost of the original peat and its capability of competing in that respect with other fuel—wood, charcoal, certain kinds of coal and coke. There is no satisfactory evidence to justify the statement of Johnson that peat charcoal of the best quality is even superior to wood charcoal. Tested by the quantity of water evaporated, Stöckhardt found that approximately 100 lbs. of wood charcoal were equal to 113 lbs. of peat charcoal. Whether it is practicable to make peat charcoal of good quality and economically in any existing form of coke oven remains, Dr. Percy concludes, to be decided by experience.

Throughout the volume Dr. Percy appears to have taken especial care that the honour of every improvement introduced, and of every discovery or suggestion made, shall be secured to him to whom it properly belongs—an important feature in a book destined to hold for a long time a prominent place amongst standard works on technology—and the facts which he gives will remove some impressions which have been too extensively received. It has been well said that "talent beats the bush, whilst tact catches the bird," and in the case of inventors has been largely exemplified. In referring to the regenerative gas furnace, he shows that to the Rev. Robert Stirling, of the Church of Scotland, is due the honour of having introduced the regenerative principle. In the copy of Stirling's specification in Dr. Percy's possession, Mr. Gordon, formerly Professor of Engineering in Glasgow University, has inserted a marginal note designating the details given by Stirling as "Siemens's Regenerator described." And Mr. Gordon is the brother-in-law of Mr. C. W. Siemens. This would appear to be a similar case to that of designating the rotary furnace the Danks furnace; both erroneous designations should be abandoned. The information given in the work is so lucid and complete that the student of metallurgy need not desire a more useful book, whilst the fact that the whole of the illustrations, 112 on wood and nine on stone, are drawn to scale gives the volume a real practical value which few other text books can lay claim to. Dr. Percy is doing for the metallurgists of England what Bruno Kerl has already done for Germany, and his labour will not fail to be appreciated by all who desire Great Britain to maintain a high position amongst industrial countries.

\* "Metallurgy: the Art of Extracting Metal from their Ores." By JOHN PERCY, M.D., F.R.S., F.C.S. Introduction, Refractory Materials, and Fuel. London: John Murray, Albemarle-street.

A petition to wind-up the Wernipistill Colliery Company (Limited) has been presented to the Court of Chancery.

A petition for winding-up of the Ifton Rhyn Collieries (Limited) is to be heard before Vice-Chancellor Malins on May 28.

NEW ZEALAND QUARTZ CRUSHING AND GOLD MINING COMPANY (LIMITED), IN VOLUNTARY LIQUIDATION.—The creditors are required, before June 21, to send in their names and addresses, and particulars of their debts or claims, and of the securities (if any) held by them.

PEAT COAL AND CHARCOAL COMPANY (LIMITED).—A petition for winding-up this company by the Court of Chancery has been presented to the Lord Chancellor by the Rev. John Fawcett, of St. John's Park, Blackheath, a contributor of the said company. The petition is directed to be heard before Vice-Chancellor Sir Richard Malins on May 28.

EPPE'S COCOA—GRAPEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Eppe has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—Civil Service Gazette.

CAPT. PHILIP HAWKE, PHILIPPS COTTAGE, BY WIGTON, CUMBERLAND.

Begs respectfully to offer his services to INSPECT and REPORT upon MINES in ENGLAND, IRELAND, SCOTLAND, and WALES. Twenty-six years' experience in the Management of Mines, including five years in Calbeck Fells Consolidated. Terms and references may be had on application.

CAPTAIN ABRAHAM FRANCIS, MINING AGENT, ENGINEER, AND SURVEYOR, GOGINAN, ABERYSTWYTH.

## LEAD ORES.

| Date.                     | Mines. | Tons. | Price per ton. | Purchasers.              |
|---------------------------|--------|-------|----------------|--------------------------|
| May 13—Nantlago.....      | 10     | 25 6  | 0              | Burry Port Company.      |
| 18—Foxdale.....           | 10     | 25 6  | 0              | Nevill, Druce, and Co.   |
| —Powell Consolidated..... | 10     | 15 0  | 6              | South Wales Company.     |
| —South Darren.....        | 10     | 20 5  | 6              | Sheldon, Bush, and Co.   |
| 19—Great Laxey.....       | 100    | 24 5  | 6              | Burry Port Company.      |
| —Dyflife.....             | 80     | 14 18 | 6              | A. Eytton.               |
| 20—Roman Gravel.....      | 125    | 15 6  | 0              | Walker, P. rker, and Co. |
| —ditto.....               | 20     | 15 7  | 0              | Nevill, Druce, and Co.   |
| —ditto.....               | 25     | 15 9  | 6              | Burry Port Company.      |
| —Bwadrain Consols.....    | 15     | 14 9  | 0              | Nevill, Druce, and Co.   |

## BLACK TIN.

| Date.                    | Mines. | Tons. | Price per ton. | Amount.    | Purchasers. |
|--------------------------|--------|-------|----------------|------------|-------------|
| May 19—Wheal Coates..... | 2 13   | 0 1   | £52 15 0       | £ 139 16 2 | —           |

## COPPER ORES.

| Mines.         | Tons. | Produce. | Price.  | Mines.          | Tons. | Produce. | Price.   |
|----------------|-------|----------|---------|-----------------|-------|----------|----------|
| Cape Ore.....  | 77    | 30       | £24 8 6 | Var Ore.....    | 61    | 16½      | £12 10 0 |
| ditto.....     | 46    | 30       | 24 12 6 | Laque lo.....   | 53    | 20       | 16 2 0   |
| ditto.....     | 45    | 30       | 24 10 0 | Albarca.....    | 52    | 20       | 16 2 0   |
| ditto.....     | 17    | 26½      | 21 15 0 | Furdon Ore..... | 35    | 12½      | 9 16 0   |
| ditto.....     | 6     | 27       | 21 15 0 | ditto.....      | 44    | 6½       | 4 17 0   |
| ditto.....     | 64    | 22½      | 17 18 6 | ditto.....      | 15    | 26½      | 1 11 0   |
| ditto.....     | 65    | 22½      | 18 1 6  | Bampfyld.....   | 39    | 6        | 4 11 0   |
| ditto.....     | 48    | 23½      | 18 19 0 | ditto.....      | 10    | 26½      | 21 0 0   |
| ditto.....     | 43    | 38½      | 31 5 6  | ditto.....      | 1     | 6½       | 5 3 0    |
| ditto.....     | 43    | 38½      | 31 12 0 | Australian..... | 20    | 19½      | 15 11 0  |
| Berehaven..... | 100   | 8½       | 6 9 6   | ditto.....      | 10    | 22       | 17 14 0  |
| ditto.....     | 79    | 8½       | 6 12 6  | Telhadella..... | 10    | 15       | 11 6 0   |
| ditto.....     | 59    | 8½       | 6 10 0  | ditto.....      | 1     | 28½      | 21 6 0   |
| ditto.....     | 59    | 8½       | 6 12 6  | Copper Ore..... | 5     | 14½      | 11 2 6   |
| Var Ore.....   | 62    | 16½      | 12 10 6 | ditto.....      | 2     | 26½      | 19 8 0   |
|                |       |          |         | ditto.....      | 2     | 33½      | 28 4 6   |

| Names.                         | Tons. | Amount.      |
|--------------------------------|-------|--------------|
| Copper Miners' Company.....    | 142   | £ 2,066 14 0 |
| P. Grenfell and Sons.....      | 99½   | 1,422 17 6   |
| Nevill, Druce, and Co.....     | 244   | 3,145 11 6   |
| Vivian and Sons.....           | 132½  | 662 2 0      |
| Williams, Foster, and Co.....  | 143   | 1,131 17 6   |
| Mason and Elkington.....       | 216   | 2,081 7 6    |
| Sweetland, Tuttle, and Co..... | 207   | 3,771 1 3    |
| Total.....                     | 1208  | £18,205 5    |



## Mining Correspondence.

1998

$\frac{d}{dt} \left( \frac{1}{\rho} \right) = - \frac{1}{\rho^2} \frac{d\rho}{dt}$

in the bottom of the 82 east is worth 15*l.* per fathom. The slope in the back of the 70 is worth 10*l.* per fathom. We are busily engaged in preparing to fix a new 11-in. plunger-lift at the 105.

GLASGOW CARADON CONSOLS.—Wm. Taylor, Wm. J. Taylor & Co.

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course of the north lode, the worth 35 $\frac{1}{2}$  per fathom. This is a new piece of ground coming from the 80 fathom level to the 60, and going east into whole ground, so that there is every reason to believe that good results will be met with in this part of the mine.

**WEST GODOLPHIN.**—John Pope, May 19: At Wilson's shaft we have a great increase of water, which has temporarily prevented our sinking. Wilson's lode, in the 50 east, is worth 12 $\frac{1}{2}$  per fathom; in the 40 east, 15 $\frac{1}{2}$  per fathom. Other parts of the mine without material change since last week. A full report will be forwarded for the committee meeting on Tuesday next.

**SINKING GREAT DUKES.**—J. Reed, May 19: In sinking Duke's shaft we have come down to a hard crossing of the lode in a oblique direction, which is likely to improve the lode, as it contains rich stones of tin, and worth together 8 $\frac{1}{2}$  per fathom. I purpose shortly to drive off a level west, and which will be in new or unexplored ground for upwards of 100 fms. in extent, where we should be in the course of the first 20 fms. intersect the Croft Goshal lode, which was found so rich a short distance to the west. The stamps water-wheel requires a little repair, but the other machinery is in good order.

**GREAT MARIA ADAM AND THE CONSOLE.**—Wm. Shewis, May 20: Willoughby's Shaft, Wm. Maria Lode. There has been no lode taken down in the 104 east since last report. The rise in back of this level west is being put up with fair progress by the side of the lode. We have commenced to take down the lode in the 93 east, which is improving for muddle; worth 14 $\frac{1}{2}$  per fathom. Sinking for stope in bottom of this level west; the lode is worth 40 $\frac{1}{2}$  per fathom. No. 1 stope in back of this level is worth 20 $\frac{1}{2}$  per fathom for copper and muddle. No. 2 stope is producing a little copper and muddle.—North Lode. In the 13 east, the lode is better than in the 104 east, and worth 10 $\frac{1}{2}$  per fathom.

**WEST MILWAU.**—W. Francis, May 18: We have not cut any more joints belonging to the vein lately intersected in driving south from West Meadow shaft, but the appearances continue most favourable, and I am hoping to be able to report some further improvement shortly.

—W. Francis, May 19: I am inclined to think from what I saw of the ground in our cross cut yesterday that there is still a better branch before us than any yet cut, and I should recommend the cross cut to be driven on with full speed.

**WEST TANKERVILLE.**—A. Waters, May 20: The 63, south of boundary shaft, is in a lode 4 ft. wide, worth 22 $\frac{1}{2}$  per fathom. The 50, south of shaft, is not cut through the twitch, but will open out again, we think, in a few fathoms further driving. The stope in this level, south of winze, is worth 22 $\frac{1}{2}$  per fathom. The stope north of winze is also worth 22 $\frac{1}{2}$  per fathom. The winze in the 46, south of shaft, is down to a kindly lode again, and which is yielding some good orestuff. The stope in the 46, on No. 2 lode, is worth 20 $\frac{1}{2}$  per fathom. My report of last week was delayed by a mistake on the part of the Post Office people.

**WEST WHEAL TOLGUS.**—May 20: Taylor's shaftmen we hope will finish cutting in the rise in the 125 in two or three days, when they will at once commence to sink the shaft. The lode in the 125 east is opening wider; it is over 3 ft. wide, composed of spar, prlan, and iron, with a little ore, and letting out plenty of water. The lode in the 125 west is small and poor. The lode in the 115 end west is 3 ft. wide, with a little ore, but nothing to value. The lode in the 105 end west is 3 ft. wide, and very kindly; we have been expecting something good in this end for some time; the character of the lode and the softness of the ground leads us to expect it. The lode in the 95 end west continues hard and poor. The lode in the rise in the 95 is looking better; we hope to be able to carry a port a good lode in our next. The lode in the 85 west is without alteration—still poor. There has not been much done in the 75 end west since our last report, in consequence of the men being about other work for a few days. The stops throughout are without alteration—looking very well. Richards's shaftmen continue to make good progress in sinking. The lode in the 65 end west is 2 ft. wide, spotted with ore, but nothing to value. We shall resume the driving in the 65 end in a day or two, as the tribulators have holed to the workings in the bottom of the 60 end in six parcels; we think it is a good lot of ore.

**WHEAL ARGUS.**—T. Trehair, May 19: The prospects of the mine have not been better for the last twelve months, but our returns of tin will depend entirely on the supply of water we get at the stamps, which is not now enough to work four heads.

**WHEAL CREBOR.**—J. Andrews, May 19: There is no change in the 120 east. The lode in the 120 west is 7 ft. wide, worth 10 $\frac{1}{2}$  per fathom. The stope in back of the 120 is completed up to the 105 end, and the profitable ground taken away up to the level. There is no change or no change in the 105 east. In the 48 east we are still driving by the side of the lode, but shall begin to take it down in a day or two.

**WHEAL GRENVILLE.**—E. Hosking, W. Bennetts, May 15: The lode in the new shaft, sinking below the 160, is worth 35 $\frac{1}{2}$  per fathom. The rise above the 160, east of cross-cut, is worth 10 $\frac{1}{2}$  per fathom. The lode in the 150, east of cross-cut, is worth 18 $\frac{1}{2}$  per fathom. The lode in the 150, west of cross-cut, is worth 10 $\frac{1}{2}$  per fathom. The rise above the 150, east of cross-cut, is worth 12 $\frac{1}{2}$  per fathom. The rise above the 140, west of rise, is worth 12 $\frac{1}{2}$  per fathom. The rise above the 130 is worth 13 $\frac{1}{2}$  per fathom. In the 130 cross-cut north we have not seen much more of the lode than we reported on Thursday last, as the men have been working in the upper part of the end; so far as seen it is worth 15 $\frac{1}{2}$  per fathom, and there is every indication of its opening out a good lode. The lode in the 130, east of north shaft, is 2 ft. wide, and worth 6 $\frac{1}{2}$  per fathom. The stope below the 110 east is worth 9 $\frac{1}{2}$  per fathom.

**WHEAL HILL.**—E. Hosking, W. Bennetts, May 20: We are still cutting through the lode in the 130 cross-cut, north of north shaft, and are pleased at its fine appearance at this point; its composition is similar to that seen just over it in the adjoining mine. Other parts of the mine are looking much the same as last reported.

**WHEAL KITTY** (St. Agnes).—Stephen Davey, John Williams, May 15: New Shaft, Pryor's lode: In this shaft, sinking below the 142, the ground is a little easier for sinking, and is being pushed on as fast as possible to reach the 154. In the 142, east of cross-cut, the lode is 4 ft. wide, worth 15 $\frac{1}{2}$  per fathom. The lode is as good as being struck, but, so far as seen, it is a promising lode, and worth for tin 8 $\frac{1}{2}$  per fathom. The lode in the 142 driving east is becoming more settled as it gets out of the influence of the gossan, and produces a little tin. In the 142, driving north of shaft, on the caunter, the lode is worth for tin 9 $\frac{1}{2}$  per fathom. The lode in the 130, driving west of shaft, is worth for tin 18 $\frac{1}{2}$  per fathom. We have commenced sinking a winze below the 130, east of shaft, where the lode is worth for tin 8 $\frac{1}{2}$  per fathom. The lode in the 118, driving west of shaft, is worth for tin 14 $\frac{1}{2}$  per fathom. The lode in the 118, driving east of shaft, is worth for tin 14 $\frac{1}{2}$  per fathom. The lode in the 90, driving east of engine shaft, is not so good as when last reported, being disordered by a cross head. We have met with nothing as yet in the cross-cut, driving south of the north adit, but we shall drive it a few feet further to prove if there is a part of the lode in that direction.

**WHEAL PEEVOR.**—A. T. James, W. Pryor, May 15: Tutwork Setting: Sir Frederick's engine-shaft for the time suspended, and the shaftmen are employed in stopping above the 60, preparatory to re-mining a large stopes, bringing down to the 60 level, and driving 60 fms. east of shaft, to sink a level at 104. The lode is 4 ft. wide, worth 15 $\frac{1}{2}$  per fathom. The same level, west of shaft, to six men, at 5 $\frac{1}{2}$  per fathom; in this end a great change has taken place—all the branches seem to be nullifying to form one great lode, which, although not rich at present, yet presents a very promising appearance. The 48, east of shaft, to six men, at 5 $\frac{1}{2}$  per fathom; the lode in the bottom of the level is 4 ft. wide, worth 18 $\frac{1}{2}$  per fathom. The 48, west of shaft, to four men, at 7 $\frac{1}{2}$  per fathom; the lode is 4 ft. wide, producing little quantity of tin; the lode is poorer. The 40, west of shaft, to four men, at 7 $\frac{1}{2}$  per fathom; the lode is 4 ft. wide, worth 25 $\frac{1}{2}$  per fathom. The 45, winze, about 10 fms. east of shaft, to three men, at 20 $\frac{1}{2}$  per fm.; this winze is being sunk in the excavations made by the ancients; we anticipate meeting with solid ground about 3 fms. below the present bottom. The 36, west of shaft, to four men, at 7 $\frac{1}{2}$  per fathom; the lode is 5 ft. wide, worth 10 $\frac{1}{2}$  per fm. The tribute department is much as usual.

**WHEAL UMY.**—Wm. Elmh, M. Rogers, Wm. Rich, jun., May 15: The lode in the 160, west of shaft, carrying down to the 160 level, and east is worth 7 $\frac{1}{2}$  per fm. The lode in the 150, driving out water freely, but the lode is poor for tin. The 150 end, east of incline shaft, yields a little tin. We are pushing on the rise in the back of the 150 towards Hind's shaft, and are engaged fixing the pitwork below the 83 in this shaft. The 140, west of incline, is worth 7 $\frac{1}{2}$  per fathom. The 149, east of King's, is worth 12 $\frac{1}{2}$  per fathom. The 130 east is worth 18 $\frac{1}{2}$  per fathom. The 130 cross-cut, north of incline, is not yet through the lode. The rise in the back of the 120 west yields a little tin. The 80, east of King's, is worth 10 $\frac{1}{2}$  per fathom. The 110 east is worth 10 $\frac{1}{2}$  per fathom. The 190 east is worth 8 $\frac{1}{2}$  per fathom. The 40, west of incline, is worth 7 $\frac{1}{2}$  per fathom.

**WILLOUGHBY.**—H. Nottingham, May 15: No work has been done in the bottom levels since my last report. With the long season of dry weather we have had our reservoirs are nearly run out; and, as there is nothing to fall back upon in the Bod Lake, I thought it advisable to stop the wheel by night and work it through the day, so that we may go on dressing. We keep the water door in the wheel, except when it rises from the bottom of the shaft Monday morning. The men from the south end of the 3 shaft, on Goddard's lode, on the part of the lode we passed by driving the 13 shaft, and which comes out again into the level at the No. 2 shaft. You will remember it was at this we cut into the run of lead which we are now working on south of the No. 3 shaft, and which we are now following back north. We are stripping along the top of it here, and leaving it along the bottom of the level; worth from 1 $\frac{1}{2}$  to 2 tons of lead and the usual amount of blende per fathom. The men from the stope in the north end of the 23, new lode, are stopping below the 13, north of the stope in the back of the 23, on Goddard's lode, are stopping below the 13, north of No. 1 shaft. This stope is looking better: worth 25 to 30 cwt. of lead and the same of blende per fathom. The stope in the end of the 13, south of No. 3 shaft, is not so productive: the lode is squeezed up, and thrown to the hanging side, out of its regular course. When we get through this bar of ground, except we shall have the ore which is going to the 23, and the 24, and the 25, and sent out samples for the 20 ton test, and the 21, and the 22, and the 23, and the 24, and the 25, shall have 30 tons of blende ready, making a total of 60 tons for the two months. As soon as we have made up the parcel of blende I intend to put in the new rolls to the crusher. The old ones are gone so bad that we cannot get through much work with the first crushing.

**TIE TIN STANDARDS.**—Since the reduction of 2s. per cwt. on April 12, no



value of the arsenic, of course, depends on the percentage of fine arsenic it contains; but this is rarely ascertained, the buyer trusting to the judgment of the quality, and the seller trusting to the value of what he shall get offered him. As the buyers are few in number, there is generally some private conversation around the corner before offers are made, but sometimes an outsider in the price. There are several arsenic manufacturers now in Cornwall—one at Devon Great Consols, and several near Calstock, one near Berraston, one at Gwithian, one at Roseworthy, one at Biscoe, one at Swanpool, and at other places.

**CORNISH MINE SHARE MARKET.**—In consequence of the holidays, the share market has been quiet during the week, and but little business transacted. The feature of the week was the three mine meetings held yesterday. At Tincroft a 5s. dividend was declared; the meeting passed off quietly. Capt. Teague stated he was importing his coals, which were of good quality, and cost him, delivered on the mine, 17s. 3d. per ton; price charged by local merchants for mine coals at present is 18s.; the question was also raised of a considerable saving can be effected. At Carn Brea the accounts for the quarter showed a profit of over 1200l., but on charging up the 13th month's cost a loss of about 700l. was shown. At South Crofty a profit of 118l. was shown, and a balance against the mine of about 1000l.; the remaining half of the 13th month's cost was charged at this meeting; the prospects of the mine have improved. The following are the closing prices:—Cook's Kitchen, 5½ to 6½. Carn Brea about 40. Dolcoath have been a little dear in, 40 to 41. East Pool declined to 13, 13. East Lovell continue at 8 to 9. Providence are 3 to 4. Rosewell Hill, 5s. to 7s. 6d. South Carn Brea 22s. 6d. to 25s., but not much dealt in. South Condorwines, 3 to 3½. South Crofty, 15 to 16. South Frances, 3 to 5. Tincroft, 20 to 25. West Basset quiet at 4½ to 4½. West Frances, 7 to 8. West Setaon a little dear at 7 to 9. West Tolgus have declined to 4½, 4½, at which they close dull. Wheel June, 3 to 3½. Kitty (St. Agnes), 4 to 5. Wheel Pevor called 3 to 3½. Wheel Uny, 2 to 2½. West Briton

## The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, MAY 21, 1875.

| COPPER.  |   |   |       | IRON.   |                           |               |        |
|--|---|---|-------|---|---------------------------|---------------|--------|
| Best selected  | per ton   | £   | s. d. | Bars Welsh, in London                                   | 8                         | 0             | 8 12 6 |
| Tough cake and tile <td>88<td>10<td>0</td><td>Do., to arrive<td>8<td>10<td>0</td></td></td></td></td></td>             | 88 <td>10<td>0</td><td>Do., to arrive<td>8<td>10<td>0</td></td></td></td></td>              | 10 <td>0</td> <td>Do., to arrive<td>8<td>10<td>0</td></td></td></td>              | 0     | Do., to arrive <td>8<td>10<td>0</td></td></td>          | 8 <td>10<td>0</td></td>   | 10 <td>0</td> | 0      |
| Sheeting & sheels <td>94<td>0<td>0</td><td>Nail rods<td>9<td>0<td>0</td></td></td></td></td></td>                      | 94 <td>0<td>0</td><td>Nail rods<td>9<td>0<td>0</td></td></td></td></td>                     | 0 <td>0</td> <td>Nail rods<td>9<td>0<td>0</td></td></td></td>                     | 0     | Nail rods <td>9<td>0<td>0</td></td></td>                | 9 <td>0<td>0</td></td>    | 0 <td>0</td>  | 0      |
| Boils <td>95<td>0<td>0</td><td>Staffs, in London<td>9<td>0<td>0</td></td></td></td></td></td>                          | 95 <td>0<td>0</td><td>Staffs, in London<td>9<td>0<td>0</td></td></td></td></td>             | 0 <td>0</td> <td>Staffs, in London<td>9<td>0<td>0</td></td></td></td>             | 0     | Staffs, in London <td>9<td>0<td>0</td></td></td>        | 9 <td>0<td>0</td></td>    | 0 <td>0</td>  | 0      |
| Bottoms <td>95<td>0<td>0</td><td>Bars, ditto<td>9<td>10<td>0</td></td></td></td></td></td>                             | 95 <td>0<td>0</td><td>Bars, ditto<td>9<td>10<td>0</td></td></td></td></td>                  | 0 <td>0</td> <td>Bars, ditto<td>9<td>10<td>0</td></td></td></td>                  | 0     | Bars, ditto <td>9<td>10<td>0</td></td></td>             | 9 <td>10<td>0</td></td>   | 10 <td>0</td> | 0      |
| Old <td>80<td>0<td>0</td><td>Bars, ditto<td>9<td>10<td>0</td></td></td></td></td></td>                                 | 80 <td>0<td>0</td><td>Bars, ditto<td>9<td>10<td>0</td></td></td></td></td>                  | 0 <td>0</td> <td>Bars, ditto<td>9<td>10<td>0</td></td></td></td>                  | 0     | Bars, ditto <td>9<td>10<td>0</td></td></td>             | 9 <td>10<td>0</td></td>   | 10 <td>0</td> | 0      |
| Australian, Wallaroo <td>90<td>0<td>0</td><td>Bars, at works<td>10<td>0<td>0</td></td></td></td></td></td>             | 90 <td>0<td>0</td><td>Bars, at works<td>10<td>0<td>0</td></td></td></td></td>               | 0 <td>0</td> <td>Bars, at works<td>10<td>0<td>0</td></td></td></td>               | 0     | Bars, at works <td>10<td>0<td>0</td></td></td>          | 10 <td>0<td>0</td></td>   | 0 <td>0</td>  | 0      |
| ditto other brands <td>88<td>0<td>0</td><td>Hoops, ditto<td>9<td>10<td>0</td></td></td></td></td></td>                 | 88 <td>0<td>0</td><td>Hoops, ditto<td>9<td>10<td>0</td></td></td></td></td>                 | 0 <td>0</td> <td>Hoops, ditto<td>9<td>10<td>0</td></td></td></td>                 | 0     | Hoops, ditto <td>9<td>10<td>0</td></td></td>            | 9 <td>10<td>0</td></td>   | 10 <td>0</td> | 0      |
| Chili bars, g.o.b. <td>82<td>10<td>0</td><td>Sheets, single, &amp; plate<td>12<td>0<td>0</td></td></td></td></td></td> | 82 <td>10<td>0</td><td>Sheets, single, &amp; plate<td>12<td>0<td>0</td></td></td></td></td> | 10 <td>0</td> <td>Sheets, single, &amp; plate<td>12<td>0<td>0</td></td></td></td> | 0     | Sheets, single, & plate <td>12<td>0<td>0</td></td></td> | 12 <td>0<td>0</td></td>   | 0 <td>0</td>  | 0      |
| Wire <td>0<td>11½</td><td>0</td><td>Pig No. 1, in Wales<td>5<td>0<td>0</td></td></td></td></td>                        | 0 <td>11½</td> <td>0</td> <td>Pig No. 1, in Wales<td>5<td>0<td>0</td></td></td></td>        | 11½   | 0     | Pig No. 1, in Wales <td>5<td>0<td>0</td></td></td>      | 5 <td>0<td>0</td></td>    | 0 <td>0</td>  | 0      |
| Tubes <td>0<td>1<td>0½</td><td>Refined metal, ditto<td>7<td>0<td>0</td></td></td></td></td></td>                       | 0 <td>1<td>0½</td><td>Refined metal, ditto<td>7<td>0<td>0</td></td></td></td></td>          | 1 <td>0½</td> <td>Refined metal, ditto<td>7<td>0<td>0</td></td></td></td>         | 0½    | Refined metal, ditto <td>7<td>0<td>0</td></td></td>     | 7 <td>0<td>0</td></td>    | 0 <td>0</td>  | 0      |
| BRASS.   |   |   |       | Bars, common, ditto                                     | 7 <td>15<td>0</td></td>   | 15 <td>0</td> | 0      |
| Sheet  | per lb.   | £   | s. d. | Do., merchant, f.o.b.                                   | 8 <td>0<td>0</td></td>    | 0 <td>0</td>  | 0      |
| Sheet <td>9d. 10d.</td> <td></td> <td></td> <td>Do., in Tynes or Tees</td> <td>8<td>0<td>0</td></td></td>              | 9d. 10d.  |   |       | Do., in Tynes or Tees                                   | 8 <td>0<td>0</td></td>    | 0 <td>0</td>  | 0      |
| Wire <td>9½d. 11½d.</td> <td></td> <td></td> <td>Do., railway, in Wales</td> <td>6<td>10<td>0</td></td></td>           | 9½d. 11½d.  |   |       | Do., railway, in Wales                                  | 6 <td>10<td>0</td></td>   | 10 <td>0</td> | 0      |
| Tubes <td>9½d. 11½d.</td> <td></td> <td></td> <td>Do., Swed. in London</td> <td>10<td>0<td>0</td></td></td>            | 9½d. 11½d.  |   |       | Do., Swed. in London                                    | 10 <td>0<td>0</td></td>   | 0 <td>0</td>  | 0      |
| SPELTER.   |   |   |       | To arrive   | 13 <td>0<td>0</td></td>   | 0 <td>0</td>  | 0      |
| Foreign on the spot  | per ton   | £   | s. d. | Pig No. 1, in Clyde                                     | 3 <td>12</td> <td>6</td>  | 12            | 6      |
| " to arrive <td>24<td>0<td>0</td><th>Do., f.o.b. Tynes or Tees</th><td>4<td>0<td>0</td></td></td></td></td>            | 24 <td>0<td>0</td><th>Do., f.o.b. Tynes or Tees</th><td>4<td>0<td>0</td></td></td></td>     | 0 <td>0</td> <th>Do., f.o.b. Tynes or Tees</th> <td>4<td>0<td>0</td></td></td>    | 0     | Do., f.o.b. Tynes or Tees                               | 4 <td>0<td>0</td></td>    | 0 <td>0</td>  | 0      |
| ZINC.  |   |   |       | Do., Nos. 3, 4, f.o.b., do.                             | 3 <td>10<td>0</td></td>   | 10 <td>0</td> | 0      |
| In sheets  | per ton   | £   | s. d. | Railway spikes  | 12 <td>0<td>0</td></td>   | 0 <td>0</td>  | 0      |
| English blocks <td>29<td>10<td>0</td><th>Indian Charcoal Pigs</th><td>—</td><td>—</td><td>—</td></td></td>             | 29 <td>10<td>0</td><th>Indian Charcoal Pigs</th><td>—</td><td>—</td><td>—</td></td>         | 10 <td>0</td> <th>Indian Charcoal Pigs</th> <td>—</td> <td>—</td> <td>—</td>      | 0     | Indian Charcoal Pigs                                    | —                         | —             | —      |
| TIN.   |   |   |       | in London, p. ton                                       | —                         | —             | —      |
| Do., bars (in brls.) <td>91<td>0<td>0</td><th colspan="4">STEEL.</th></td></td>  | 91 <td>0<td>0</td><th colspan="4">STEEL.</th></td>  | 0 <td>0</td> <th colspan="4">STEEL.</th>  | 0     | STEEL.  |                           |               |        |
| Do., refined <td>92<td>0<td>0</td><th>Swed., in kegs (rolled)</th><td>—</td><td>—</td><td>—</td></td></td>             | 92 <td>0<td>0</td><th>Swed., in kegs (rolled)</th><td>—</td><td>—</td><td>—</td></td>       | 0 <td>0</td> <th>Swed., in kegs (rolled)</th> <td>—</td> <td>—</td> <td>—</td>    | 0     | Swed., in kegs (rolled)                                 | —                         | —             | —      |
| Banca <td>88<td>0<td>0</td><th>Ditto (hammered)</th><td>19<td>10</td><td>0</td></td></td></td>                         | 88 <td>0<td>0</td><th>Ditto (hammered)</th><td>19<td>10</td><td>0</td></td></td>            | 0 <td>0</td> <th>Ditto (hammered)</th> <td>19<td>10</td><td>0</td></td>           | 0     | Ditto (hammered)  | 19 <td>10</td> <td>0</td> | 10            | 0      |
| Straits <td>83<td>10<td>0</td><th>Ditto, in faggots</th><td>20<td>0<td>0</td></td></td></td></td>                      | 83 <td>10<td>0</td><th>Ditto, in faggots</th><td>20<td>0<td>0</td></td></td></td>           | 10 <td>0</td> <th>Ditto, in faggots</th> <td>20<td>0<td>0</td></td></td>          | 0     | Ditto, in faggots                                       | 20 <td>0<td>0</td></td>   | 0 <td>0</td>  | 0      |
| Australian <td>82<td>10<td>0</td><th>English, spring</th><td>19<td>0</td><td>0</td></td></td></td>                     | 82 <td>10<td>0</td><th>English, spring</th><td>19<td>0</td><td>0</td></td></td>             | 10 <td>0</td> <th>English, spring</th> <td>19<td>0</td><td>0</td></td>            | 0     | English, spring   | 19 <td>0</td> <td>0</td>  | 0             | 0      |
| TIN-PLATES.*   |   |   |       | LEAD.   |                           |               |        |
| Charcoal, 1st quality  | per box.  | £   | s. d. | English, Pig, com.                                      | 23 <td>15</td> <td>0</td> | 15            | 0      |
| 1X Do., 1st quality <td>1<td>10</td><td>0</td><th>Ditto, L.B.</th><td>23<td>10</td><td>0</td></td></td>                | 1 <td>10</td> <td>0</td> <th>Ditto, L.B.</th> <td>23<td>10</td><td>0</td></td>              | 10  | 0     | Ditto, L.B.   | 23 <td>10</td> <td>0</td> | 10            | 0      |
| 1X Do., 2d quality <td>1<td>11</td><td>0</td><th>Ditto, W.B.</th><td>23<td>10</td><td>0</td></td></td>                 | 1 <td>11</td> <td>0</td> <th>Ditto, W.B.</th> <td>23<td>10</td><td>0</td></td>              | 11  | 0     | Ditto, W.B.   | 23 <td>10</td> <td>0</td> | 10            | 0      |
| 1X Do., 3d quality <td>1<td>11</td><td>0</td><th>Ditto, sheet</th><td>24<td>0<td>0</td></td></td></td>                 | 1 <td>11</td> <td>0</td> <th>Ditto, sheet</th> <td>24<td>0<td>0</td></td></td>              | 11  | 0     | Ditto, sheet  | 24 <td>0<td>0</td></td>   | 0 <td>0</td>  | 0      |
| 1X Coke <td>5<td>0<td>7</td><th>Ditto, red lead</th><td>24<td>0</td><td>0</td></td></td></td>                          | 5 <td>0<td>7</td><th>Ditto, red lead</th><td>24<td>0</td><td>0</td></td></td>               | 0 <td>7</td> <th>Ditto, red lead</th> <td>24<td>0</td><td>0</td></td>             | 7     | Ditto, red lead   | 24 <td>0</td> <td>0</td>  | 0             | 0      |
| 1X Ditto <td>11<td>0<td>13</td><th>Ditto, white</th><td>30<td>0</td><td>0</td></td></td></td>                          | 11 <td>0<td>13</td><th>Ditto, white</th><td>30<td>0</td><td>0</td></td></td>                | 0 <td>13</td> <th>Ditto, white</th> <td>30<td>0</td><td>0</td></td>               | 13    | Ditto, white  | 30 <td>0</td> <td>0</td>  | 0             | 0      |
| Canada plates, p. ton <td>17<td>0</td><td>18</td><th>Ditto, patent shot</th><td>27<td>0<td>0</td></td></td></td>       | 17 <td>0</td> <td>18</td> <th>Ditto, patent shot</th> <td>27<td>0<td>0</td></td></td>       | 0   | 18    | Ditto, patent shot                                      | 27 <td>0<td>0</td></td>   | 0 <td>0</td>  | 0      |
| Ditto, at works <td>16<td>0</td><td>17</td><th>Spanish</th><td>22<td>5</td><td>0</td></td></td>                        | 16 <td>0</td> <td>17</td> <th>Spanish</th> <td>22<td>5</td><td>0</td></td>                  | 0   | 17    | Spanish   | 22 <td>5</td> <td>0</td>  | 5             | 0      |
| QUICKSILVER (p. bot.)  |   |   |       | 12  | 0                         | 0             |        |

**REMARKS.**—The Whitsun holidays have to some extent interfered with the amount of business transacted during the week; but the tendency has been to slightly increased activity generally, although all metals have not participated in it. The favourable position of the Money Market, and the prospect for the future, are such as to inspire confidence, and the opinion is universally gaining ground that, although there may be no violent reaction, which would be much to be deprecated, there still is likely to be a gradual development of bona fide trade during the remainder of the year. This opinion is arrived at from the practical experience of the past months of the present year, during which so little business has been done. Consumption, however, has been going on, and meanwhile prices generally have come to that level which, under favourable circumstances, may enable buyers to enter the market and negotiate business upon a larger scale than has been their habit of late. Recent railway traffic returns show that there has already commenced an increase in the business of the country; and this, surely, one of the most infallible guides as to the real position of trade. There is no alteration in the Bank rate, but the weekly return shows a marked improvement, and is such as to inspire confidence.

**COPPER.**—This metal has been steady throughout the week, but owing in some measure, perhaps, to the Whitsun holidays, and also to the absence of news from Chili till towards the close of the week, the amount of business actually transacted was limited. The market is sustained in the main by the remarkably sound position which statistically it occupies; but the demand for consumption is small, and likewise for shipment, and there is very little speculation to impart even a temporary support to prices. Thus, the position so long maintained by this metal is due to the intrinsically sound condition of the market. Doubtless, all that is now wanted to lead to marked improvement is a slight advance in supplies and satisfactory deliveries. It is probable that the returns of the latter at the end of the month will place copper in a yet more favourable statistical position. At the beginning of the week 1268 tons of copper ore sold at Swansea at an average price of 16s. 11½d. per unit, the produce averaging 17 13 16 per cent. Cape produce yielded 16s. 5½d. per unit, the percentage averaging 28½. The price of Chili bars, g.o.b., being 82½, usual cash terms. This has been about the price at which Chili bars have stood throughout the week. Barra has changed hands at 87½. 10s. English tough is quoted 88½, best select, 89½; strong sheets, 94½, and India 4 by 4, 93½. Yellow metal is quoted 73s. 4d. to 73s. 8d. The Chili charters for the first half of May were announced by telegram on Thursday last, being in all 2100 tons, and disposed as follows:—800 tons of ore and regulus and 900 tons of bars for England, and the remaining 400 tons of bars for the Continent. The charters being deemed to be somewhat large, the market is quiet, but holders are firm, in the belief that there will be improvement in time, and that quotations meanwhile are not likely to recede to any important extent.—22½. 10s. has been realised to-day for Chili bars with extensive prompt.

**IRON.**—The battle in South Wales has been fought to its legitimate end, it may be hoped, and the object of the struggle between capital and business which has been protracted during the last four or five months, and caused an amount of suffering too sad to contemplate, and an amount of inconvenience too extended to estimate, has been attained. The men, being ill advised, were led to believe that the reduction of 10 per cent. proposed by the masters was a selfish movement, by which the masters were to be the gainers, and they the losers. It was determined to put the matter to the test, and the public were to be the arbiters. If as the men, or rather their advisers declared, the demand is such that the withdrawal of 50,000 men from the works will cause a panic in the trade, and prices advance, and such a pressure is brought to bear upon the masters that they are compelled to call back their men at the old rate of wages, or at an advance even thereon, it will be a proof that the proposed reduction was unnecessary, and that the men were justified in resisting it, but the event has proved otherwise. The action taken by the men has put them and their families into very serious straits—has greatly inconvenienced the masters—and the public has looked on, either supplying their requirements from other markets as necessity demanded, or waiting until the men should go in at such a reduction in wages as should enable the masters to quote prices which buyers could afford to give. The loss has been wide spread, but if the men have gained experience by which they may profit on future occasions it will not be unmitigated loss. Surely the thousands now returning to their work after more than four months enforced idleness, during which the sufferings endured in the experience of many must have been very great, have gone back wiser, though sadder, men than they were before. Rather than acknowledge the necessity which demanded the 10 per cent. reduction, announced in the beginning of the year, they have sacrificed four months' wages, and have involved themselves in a burden of indebtedness to the shopkeepers, without whose assistance they would have starved, and work as hard as they may it will take a long time to pay off old scores.

It is impossible to predict what the coming months of the year may unfold. At the present moment the production of coal is far exceeding the demand, and it is accumulating at the pit's mouth in considerable quantities. There must be a rapid improvement in the demand for iron to meet the output of the collieries, but this improvement has not as yet dawned. Should it be delayed much longer, a further reduction in wages must of necessity follow, but in view of the general aspect of affairs, the renewal of pacific relations throughout Europe, the promise of a good harvest, and that this is the general impression may be gathered from the downward tendency of prices on the Corn Exchange, and the determination of the men to accept the masters' proposals with reference to the scale of wages to be now adopted, and by which they shall be hereafter regulated; it may be hoped that trade may revive, and that it may revert in time to its accustomed channels. There are still a large number of men in the Aberdare and Rhondda districts who have not yet decided upon the course which they intend to adopt, but during the week important meetings have been held, and resolutions adopted empowering the delegates to make the most advantageous terms possible with the masters at a meeting which is convened for this day. The principle of the sliding scale has been fully discussed by the men, and carefully explained to a deputation of colliers by Sir George Elliot, and is accepted by them as sound and equitable. As the week closes, it appears probable that the last hostile demonstration will be with-

drawn, and on Monday next the men en masse are likely to return to their work. The Scotch pig iron market opened quiet after the holidays, and a limited business was transacted from 6½ to 6½, and 6½. On Wednesday the market presented a firmer appearance, and business was concluded up to 6½. 6d. closing prices, with buyers 3d. under. On Thursday there was no market. To-day the price of m.n. is 63s. 9d.

| Week ending May 15, 1875. | Tons | 12,659 |
|---------------------------|------|--------|
| Week ending May 16, 1874. | Tons | 6,465  |
| Increase                  | Tons | 6,194  |
| Total increase for 1875   | Tons | 36,819 |

**LEAD.**—This market is hardly so firm as it has been, and although quotations are maintained sellers would be prepared to submit to some trifling reduction in price in order to secure business. Good soft English pig, 22½. 15s. to 23½; soft Spanish, without silver, 22½. to 22½. 5s., and with silver, 5s. higher.

**SPELTER.**—Business has been done in Silesian at 24½. ex. warehouse in London, and 24½. 7s. 6d. at outports, May and June delivery. No change in English.

**ZINC.**—145 tons London rolled has realised 27½. 12s. 6d. to 27½. 10s. QUICKSILVER.—The last quotation for this metal is 12½. per flask.

**TIN.**—This market has been very firm throughout the week, but without much doing until Thursday, when the demand improved, and business was reported in Straits at rather higher prices. To-day the market has made further progress, and 84½, usual cash terms, is the price paid for Straits tin; Australian, 82½. 10s.; English ingots, 90½; bars, 91½. The market closes strong.

**TIN PLATES** are quiet.

**THE IRON TRADE (Griffiths's Weekly Report).**—Friday evening: The Glasgow market for Scotch pigs closes this afternoon at 63s. 9d. sellers for G.M.B. iron. This is 3d. less than it was at the close this day week. Makers' iron is a little firmer this afternoon. Eglinton refuse to quote price. Glengarnock is, per ton higher at the close. The following are our quotations of makers' No. 1 iron: Gartsherrie, 68s.; Celness, 70s.; Calder, 68s.; Lurgan, 68s.; Summer-88s.; Monkland, 68s.; f.o.b. Glasgow; Glengarnock, 68s. 6d.; Eglinton, 68s.; f.o.b. Androssan; Shotts, 69s.; f.o.b. Leith; Kennel, 68s.; f.o.b. Boness. We have no change to report in the iron trade this week. In the manufacturing centres the Whitsun holidays closed all the works the first three days, and numbers of the manufacturing establishments have been quiet all the week. This remark applies to all districts in England. The quantity of iron delivered into the Thames this week is considerably less than on any previous week this year, on account of the holidays above referred to. There was no meeting at the Barrow Exchange on Monday. The market in Midshire on Tuesday was abnormal, and to some extent unsettled, with very little business. Durham coke is offered more freely, at slightly lower rates. The Welsh strike may be considered at an end. With regard to our own market, there are increased enquiries for various kinds of iron, and the indications are favourable to extended business. The demand for sheet iron continues unabated, and best bars of Yorkshire and Staffordshire makers are in regular request, at the current list rates. The new Galvanising Works, erected by the late Mr. Henry Mills, at the Plect, Walsall, with the business, have been taken by Messrs. W. B. and R. G. Walker, the extensive galvanising firm, of Nottingham, near Dudley, and will be carried on by these gentlemen in connection with their Netherton Works. The Plect Works are very complete, having been constructed with the most modern machinery, by Bridges and Sons, the well-known machinists of Wolverhampton, with all their new modern galvanising machinery. We regret to have to announce the failure of Messrs. Maua and Co., of Gresham House, in this city, and Rio de Janeiro, bankers and merchants. This failure is a very heavy one, but will not affect the iron and tin-plate trades.

**COPPER.**—(Messrs. Harrington, Horan, and Co., Liverpool).—Arrivals here during the fortnight of West Coast, S.A., produce.—Castlead, from Guayaquil, 180 tons bars, 30 tons ingots; Avona, from Valparaiso, 135 tons bars; Beta, from Carrizal, 735 tons regulus; Serena, from Carrizal, 774 tons regulus; Matias Cousino, from Huasco, 70 tons ores, 234 tons regulus, 22 tons bars.—At Swansea, nil. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at—

| Ores.     |       |          |       | Regulus. |          |  |  |
|-----------|-------|----------|-------|----------|----------|--|--|
| Liverpool | Ores. | Regulus. | Bars. | Ingots.  | Barilla. |  |  |
| Swansea   | 979   | 1,314    | 979   | 334      |          |  |  |

Total ..... 979 ..... 11,292 ..... 334 .....  
Representing about 12,067 tons fine copper against 12,966 tons April 30, against 20,400 tons May 15, 1874; 20,700 tons May 15, 1873; 12,600 tons May 15, 1872. The quantity of Chili copper at sea and chartered for to date is 11,290 tons fine. Stock of Chili copper in Havre, May 1, 1920 tons. Stock of foreign copper in London, May 1, 8023 tons.

**Messrs. James and Shakespeare.**—COPPER: Sales of furnace materials have been confined to the Swansea Ticketing of 18th inst., when 1288 tons of ore, averaging 17 13 16ths per cent., fetched an average value of 16s. 11½d., stuff of high percentage realising 16s. 8d. per unit. Without any important transactions taking place bars have recovered the fall we noted in our circular of 14th inst., and now stand at the same figure as they did in the beginning of the month. The Chili charters continue moderate, those for the first fortnight of May being telegraphed at 2100 tons pure, of which 900 in bars and ingots 500 in ores and regulus for England, 400 bars for the Continent. Judging from the values ruling in Valparaiso, it would seem that producers and exporters have faith in eventually obtaining better prices on this side, as imputations of good ordinary brands would now cost 82½. 10s. delivered here, without providing any commissions to merchants. Australian sorts are tolerably steady, but a sale of Barra cake has been reported on somewhat easier terms. English descriptions are firm, and smelters seem rather disposed to ask higher rates. The deliveries of metal from the public stocks continue on a large scale, those for the first half of the month amounting in round numbers to 3000 tons. It is, therefore, possible that on 1st proximo our statistical table will show a gross total of about 28,000 tons, at which comparatively low point it has not stood since 1st December last. The future course of the article is likely to prove interesting, as, while next few months it will be seen whether the operators for all have been right in their conjectures or not. Taking last year as a standard, the probabilities are against them, the figures then falling from 38,997 tons on 1st May, to 27,741 tons on 1st December; and consumption being now on the same scale as then, whilst the quantity of metal at sea for Europe is no larger, there seems no apparent reason why the 30,163 tons of the 1st of the present month should not be reduced to a similar extent by 1st December next. The foregoing deduction may be erroneous; but, with an improving trade and prospects of another bountiful harvest, it is difficult to foresee how any other result can take place. The English continue in moderate demand the current rates. In foreign descriptions a rather firmer tone is apparent, and holders have this week been able to effect sales, both of Straits and Australian, on more favourable terms. Buyers do not yet appear willing to pay a sufficiently large advance to cause much change in the market quotations, but the present prices seem to be attracting the attention of operators.

**Messrs. Vivian, Younger, and Bond.**—COPPER: The market for foreign shows but little alteration during the week, closing about 10s. better for Chili bars. The charters for the first half of this month were advised this morning by cable at equal to 2100 tons in fine copper. It would seem from recent advices that the stock has been accumulating in Chili for some time past, and according to the latest estimate is upwards of 6000 tons. English sorts are again rather easier. —Tin: A little firmer for the week, but without much perceptible change.

**Messrs. French and Smith.**—COPPER firm. The charters from Valparaiso for the first half of May were 2100 tons. Chili bars steady at 82½. 10s.—Tin is more in demand, but prices are not much changed. Straits firm at 82½.

**Mr. Murrant.**—Tin: Although much is being made of the continued arrivals of foreign in this port, the consumption would appear to increase, and quotations, under these circumstances, do not show signs of being further cheapened just now, the price of Straits is quite 10s. dearer than that of last week, and the export trade continues in a fairly healthy condition, 250 tons Straits and 100 tons Australian have changed hands during the past week, at 81s. 6d. to 82s. for cash, and 81s. to 82s. for credit. Chili transactions have been somewhat limited, this being partly due to the Whitsun holidays, and partly to the fact that most operators have awaited the arrival of the telegram with the charters from the Coast, which was received yesterday morning advising the quantity as 2100 tons—viz., 800 tons furnace material, and 900 tons bars for England, and 400 tons for the Continent, price of bars on the coast being 81s. 5s. or about equal to 82½. 5s. 3d. per ton laid down in Liverpool, without commission to merchants on either side, an improvement of 20s. may be noted, and it is difficult to purchase except at the top rates; at the Swansea sale on the 18th instant, 220 tons fine in ore, with an average produce of 17 13 16ths per cent., fetched an average price of 16s. 11½d. per unit, and the best's sales of Chili are reported to have been 400 tons g.o.b., and best brands at 81½. 10s. to 82½. 10s. cash, and to arrive. Australian is quiet, and for English top prices are being demanded. —QUICKSILVER is still held for 12½.

**Messrs. Pixley and Abell.**—GOLD: The arrivals since our circular of last week have been very large, about 950,000l. having come to hand, including 436,000l. per P. and O. steamer from Australia, and about 380,000l. from New York; there is no export demand whatever, and the whole of the above will be purchased by the Bank of England—about 731,000l. having been already so disposed of. About 4000l., in gold coin, was shipped per Tagus to the West Indies. 70,000 sovereigns have been withdrawn from the Bank for the Brazil, and 19,000l. was shipped per P. and O. steamer Decatur, leaving Southampton this day, to Singapore. —SILVER: Our market is very flat and inactive, and quotations almost nominal, the nearest price being 54½d. per oz. standard. Recent arrivals have not yet been disposed of. The Sorata, from the Pacific, brought 95,000l.; the Tasmanian, from the West Indies, 34,000l.; and about 35,000l. has arrived from New York.

**At the Truro Ticketing, on Thursday, 3173 tons of copper ore were sold, realising 15,994l. 13s. 6d. The particulars of the sale were—Average standard, 11½. 7s.; average produce, 6½; average price per ton 5l. 1s.; quantity of fine copper, 216 tons 3 cwt. The following are the particulars of the sale:**

| Date.          | Tons. | Standard. | Produce. | Per ton. | Per unit. | Ore copper. |
|----------------|-------|-----------|----------|----------|-----------|-------------|
| April 22, 1992 | 1111  | 16        | 0        | 0        | 0         | 14s. 6d.    |
| May 6, 1268    | 108   | 13        | 0        | 0        | 0         | 14s. 5d.    |
| " 20, 3173     | 114   | 7         | 0        | 0        | 0         | 14s. 9½     |

Compared with the last sale, the advance has been in the standard 1½, and in the price per ton of ore about 1s. 4d.

**At Swansea Ticketing, on Tuesday, 1268 tons of copper ore were sold, realising 18,205l. 5s. The particulars of the sale were—Average standard for 9 per cent. produce, 102½. 6s. 10d.; average produce**

17 13 16; average price per ton, 14½. 7s. 2d.; quantity of fine copper, 225 tons 17 cwt. The following are the particulars:

| Date.          | Tons. | Standard. | Produce. | Per ton. | Per unit. | Ore copper. |
|----------------|-------|-----------|----------|----------|-----------|-------------|
| April 27, 1517 | 1517  | 18        | 6        | 0        | 0         | 15s. 9d.    |
| May 18, 1268   | 102   | 6         | 10       | 0        | 0         | 17 13 16    |

Compared with the last sale, the advance has been in the standard 17. 8s. 4d., and in the price per ton of ore about 4s. There will be no sale on June 1.

The MINING SHARE MARKET has been without much change this week, either in the way of prices or business transactions. At the Cornish Ticketing, on Thursday, the standard for copper ore again advanced 1½. The sale consisted of 3173 tons, which realised the sum of 15,994l. 13s. 6d., or an average of 5l. 1s. per ton.

The mines chiefly dealt in since our last have been West Chiverton, Roman Gravels, Tankerville, Wheal Grenville, Wheal Crebor, Great Laxey, Van, East Van, South Condorwines, Ladywell, Rookhope Valley, Bog, Pennerley, Parys Mountain, Penstruthal, and others.

Roman Gravels, 12½ to 13½ ex div.; the sale of lead ores here—230 tons—realised on Thursday an average price of 15s. 5s. 8d. per ton. Tankerville, 12 to 13 ex div.; the accounts for the general meeting show a balance of assets over liabilities of 6357l. 8s. 10d. The lead ores sold from April 18, 1874, to April 22, 1875, have been 1177 tons, for 17,155l. 9s. The monthly cost at the mine was 11,489l. 14s. 2d.; royalty to Lord Tankerville, 1177l.; London and other expenses bringing up the expenditure to 13,691l. 11s. 1d., showing a profit of 3463l. 17s. 11d. The assets consist of cash in hand, 4666l. 8s. 6d.; lead ores sold, 2212l. 10s. Ladywell shares have advanced 3½ to 3½. Samples have been sent out for a sale of 40 tons of lead ores.

West Chiverton, 13½ to 14½; the agent's report states that the 140, on south lode, west of Butler's shaft, is worth 35l. per fathom. A winze sinking from the 130, in advance of this end, is worth 55l. per fathom. Here the agent states a splendid piece of ground is being opened. There is also another new piece of ground, where the end driving towards the 70 cross-cut, on the course of the north lode, is worth 33l. per fathom, going into whole ground from the 80 to the 60. Bog, 10s. to 12s. 6d.; Cook's Kitchen, 6 to 6½.

Tincroft, 19 to 21; at the meeting, held on Wednesday, a dividend of 5s. per share was declared. The accounts charged up to December, with labour cost for January, amounted to 8362l. The credit for tin is 9780l. The mine is reported to be looking well, but much affected by the price of tin, of which 197 tons had been sold in 15 weeks, and the difference made in the credits by a fall of nearly 40l. per ton may be readily conceived. In a winze sinking below the 234 lode is worth 100l. per fathom. Carn Brea, 39 to 41 at the meeting here there was a loss shown in the quarter of 757l., and a balance apparently in hand of 4305l. The costs, however, were only charged to January, amounting to 12,806l. The tin credits, some of it not sold, amounted to 10,892l., with 50 tons not sold. In this mine the purser stated they were receiving 40l. per ton less than the old price for tin, which in 200 tons makes a difference of 8000l. on the quarter. He said, however, that miserable as the price now is Cornwall he had seen it worse, and had outlived it, and he did think they would outlive this fall also.

Povidence Mines, 3 to 4; at the meeting there was a loss shown of 367l. on the three months' working, and a debit balance of 33l. 14s. 1d. The tin sold, 53 tons, realised 2762l., and the agents hope to sell enough to pay costs next quarter. New Pembroke; there was a debit balance here of 594l. carried forward. The credits were 32 tons of tin, at 55l. 15s. per ton; copper ores, 1022½; loss on four months, 231l. The main lode in the bottom level is worth 25l. to 30l. per fathom. South Crofty, 15 to 16. The accounts here show a profit on 12 weeks' working of 118l., and a debit balance of 1051l. The credits were—copper, 1238l.; arsenic, 703l.; tin, 1440l. The lode in the engine-shaft, 3½ fms. below the 195, is worth 18l. per fathom for length of shaft, and improving. Bottalack meeting was held on Wednesday. The accounts for three months showed a profit of 603l., and a debit balance of 1083l. The credits were—copper ores, 1214l.; tin ores, 5089l. The mine is looking better, and it was stated that at 60l. per ton for tin the mine would make good profits. Great North Laxey has improved in the 84, north lode, worth 1 ton of lead ore per fathom. Devon Consols, 24 to 2½; Dolcoath, 40 to 42; East Lovell, 8½ to 9; East Pool, 12½ to 13; East Van, 1½ to 1½; Gawton, 12s. 6d. to 15s.; Great Laxey, 13½ to 14½; Hingston Down, 25s. to 30s.; Old Treburget, 5s. to 7s. 6d.; Parys Mountain have been largely dealt in, and leave off 12s. to







### Notices to Correspondents.

\* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

**BISMUTH.**—We notice an enquiry in the Journal of this day, under the head of "Bismuth." As we are generally the largest bismuth smelters in Europe, perhaps you would direct your correspondent to apply to us—JOHNSON, MATTHEY, AND CO., Hatton Garden, London, May 15.

**ASBESTOS.**—I send you by rail to-day sample of asbestos, and shall be glad if any of your correspondents can inform me where I can procure a market, and at what price?—F. R. [The sample can be seen at the Mining Journal office.]

**BRAGANZA GOLD MINE.**—Can any of your numerous readers give me any information as to what is being done with this company?—J. C. H.

**IMPORTANT MECHANICAL INVENTION.**—Will some reader oblige me with the address of Mr. D. Drummond, of Swansea, whose invention for steel hardening was mentioned in the Mining Journal of last Saturday as having been tried at the Cardiff Engine Works, &c.—P. D.

**IRON ORE IN CEYLON.**—Can any correspondent inform me whether iron ore is found and worked in Ceylon, and of what kind and quality it is.—M. J.: Kingston.

**MINE SURVEYING.**—Can any correspondent inform me the readiest method of making an underground plan agree with the surface plan? I have tried three times with the ordinary dial, commencing once at one shaft, and twice at the other, carefully taking the bearings by the needle both before and after descending, and I cannot get the underground lines true without making heavy allowance for variation, or rather putting down the underground lines, and then shifting the entire figure to make the shafts correspond.—IGNORAMUS.

**SEWAGE PIPES.**—"D. G." (Weatherby).—The price of 15 in. Wortley sewage pipes may be estimated at about 1s. 6d. (or at about 3s. in position) per running foot. Junctions may be estimated at 4s. each in addition. There is not more than 2d. per foot difference between the price of 12 in. and 15 in. pipes. It would be difficult to estimate exact cost without knowing locality and local rates of wages, &c.

**SULPHATE OF BARYTES.**—As a mine with which I am connected produces pretty considerable quantities of this material, which the officials tell me is practically worthless, can any correspondent inform me where it can be sold, and how much per ton it will fetch? I have, I feel sure, seen the sulphate of barytes advertised for in the Journal, so that there must be a market for it. What are the purposes for which it is used?—K. L. J.

**WEST MOSTYN COAL AND IRON COMPANY.**—Can any reader of the Journal send some reliable particulars as to the actual position and prospects of this company? So many conflicting rumours being current, it would be very desirable if someone, in authority or otherwise, would relieve our minds by a statement of facts.—SHAREHOLDER.

**SAFETY-CAGES.**—"Engineer" (Wigan).—Mr. Myle's safety-cage is at least a dozen years old; it was exhibited, in fact, at the London International Exhibition of 1862, and described in the Mining Journal at the time. It consisted in using a couple of forks, which, in the event of the rope breaking, were forced against the guides. Aytoun's, also exhibited in 1862, was equally simple. Either could be made and fixed for 5s. or 10s.

**CHEMICAL ANALYSIS.**—"J. K." (Strand).—The best cheap work on this subject is Dr. Noad's Manual, published by Lovell, Reeve, and Co., of Henrietta street, Covent Garden. It contains 500 or 600 pages, and the price is about half-a-guinea. It is a few years old now, but nothing has since been published surpassing it. The explanations are all very lucidly given, and although concise furnish all the information required. Dr. Noad has had great experience in teaching, and is professor or lecturer at St. George's Hospital. His recent work on Commercial Analysis is in dictionary form, and is published by Messrs. Lockwood, Stationers' Hall-court.

**Received.**—"T. P."—"H. R."—"W. H. S."—"S. L."—"T. T."—"N. S."—"Enquirer" (Leith).—"Shareholder" (New Console).—"Correspondent" (Lewisthrie).—"B. L."—"Shareholder" (Van Console).—"An Old Miner" (Tylwyd).—"Scrutator" (Flagstaff) had better apply at the office for the information. The directors would not reply to an anonymous enquirer—"T. R."—"T.": The price of West Milford shares in Mr. Marlborough's advertisement was an error—it should have been 17s. 6d.—"G. S."

## THE MINING JOURNAL,

### Railway and Commercial Gazette.

LONDON, MAY 22, 1875.

#### THE BUNKERS HILL COLLIERY EXPLOSION.

OUTBURSTS OF GAS IN MINES.

The enquiry as to the cause of the deaths of the 43 men and boys who were killed by the explosion at the Bunkers Hill Colliery has resulted in something like an open verdict, in which the proprietors and managers were exonerated from all blame. The jury, however, recommended that blasting should be done away with in all mines where safety-lamps were considered necessary. No one, we think, can find fault with the decision come to, for it appears the colliery was one of the best ventilated and managed in the district, as very often happens to be the case where there has been a serious loss of life through an explosion. The cause of the accident was evidently of a nature that is not of very frequent occurrence in our collieries, and against which there is no means of guarding or preventing. There had been an upheaval of the floor, which liberated a stream of gas, at the same time there was a shot fired, which in all probability set free more gas; the flame was thus fed on all sides, terminating in the serious loss of life to which we have alluded. In all mines where gas is known to accumulate, and safety-lamps are used, every place should be constantly inspected, for the natural fissures of the ground are sufficient to convey the gas through them. A sudden outburst of gas from the floor may be so great that the largest amount of ventilation may be insufficient to dilute and render it harmless, but in the event of its coming in contact with a light under such circumstances then the destruction of life and property is complete. Therefore it is essential that in all fiery mines every precaution should be taken to meet such a contingency, and the entire of the workings watched with as much vigilance as a powder magazine would be, for the partition between safety and destruction in many mines is very thin indeed. In all such collieries on no account whatever should blasting with powder be allowed, and this view we have on several occasions of late enforced with all the vigour we were capable of, but it would appear that past experience has not in all cases been sufficiently deterrent, so that in some instances it is only when there has been a great loss of life that the cause which led to it is abolished. For this we do not blame the employers, for only quite recently we have seen miners opposing the doing away with gunpowder, and almost ready to strike in its favour, because by it they can make better wages than by ordinary wedging. Yet in some other districts it is only fair to say the men have refused to work with powder. In so very vital a matter, however, affecting as it does the safety of thousands, we should allow no option whatever. The use or disuse of powder should be defined by Act of Parliament, and not left to the decision of either miners or managers. In this view we are supported by Mr. F. WARDLE, the Inspector of Mines for Yorkshire, who considers that legislation ought to have gone farther than it did, and entirely prohibit the use of gunpowder in those fiery seams where safety-lamps were used. That such will be done there is now but very little doubt, especially after the recommendation of the Bunkers Hill jury, and the statements made by the experts who gave evidence at the inquest. Mr. GILROY, the Assistant Government Inspector for North Staffordshire, in his evidence before the Coroner said the lesson unmistakably forced upon his mind was, "Never use gunpowder in a fiery mine." Mr. WYNNE, the Chief Inspector, concurred in that view, at the same time remarking that it was a "Perfect farce to allow blasting and forbid naked lights, for these sad calamities would continue to occur if the Legislature did not step in and forbid blasting altogether."

Had such a law as that indicated been in force a few years past in all probability we should not have had to chronicle the dreadful explosion at the Oaks Colliery, with its 360 dead (nearly 100 of the bodies being still unrecovered in the mine), or the many serious calamities which have been recorded with respect to Lancashire and North Staffordshire, where the loss of life has been very great. The Miners' Parliamentary Committee, to our thinking, under such circumstances, and with a full knowledge as to the cause of past and recent catastrophes from the use of powder, could not be more beneficially employed in the interests of those they represent than by advocating the passing of a measure, or rather an addition to the existing Mines Regulation Act, for doing away with blasting in all mines where gas was known to accumulate. Unfortunately, many miners labour under the idea that so long as they are provided with a safety-lamp they are ensured against all danger—a delusion which

has been plainly demonstrated on so many occasions, and no where more forcibly than at the Bunkers Hill Colliery. We do not believe there would be the slightest opposition from any quarter to such a proposal, for it would commend itself alike to the colliery owner, the collier, and the public generally, whose sympathies are so frequently shown by the very liberal manner in which they subscribe towards those who are left destitute owing to fatal colliery accidents, the number of which would be greatly reduced by the disuse of powder. This would be only necessary at certain places, for many mines have no gas, or very little indeed, for most mining engineers will agree with the report of 1842, as applicable to a great many districts, that "a mine when properly ventilated and drained, and when both the main and side passages are of tolerable height, is not only not unhealthy, but the temperature being moderate and very uniform, it is considered as a place of work more salubrious, and even more agreeable, than those in which many kinds of labour are carried on above ground." But, of course, there are other mines where the reverse of this is realised by the workmen.

Outbreaks of gas in mines from the floors, as we have before stated, are not of common occurrence, at least to a serious extent, and in but few instances have any complete records of them been made known, although they are particularly dangerous from the fact that they are scarcely ever anticipated, no more than they can be specially provided against. There are, however, one or two cases that are worth noticing. Some years since, at the well-known Oaks Colliery, in the West Riding of Yorkshire, two banks, each 40 yards wide, were being driven together as long-work when the fire-clay of the floor of the seam was seen to heave at different points along the face, and immediately afterwards considerable fractures were made in it, when the gas rushed out with great violence, the sound being similar to that of steam coming from a boiler at a high pressure. The current of air carried the gas past the workmen in the banks, and their Stephenson lamps were extinguished. On an examination of the fractures from which the gas issued they were found to be several feet deep. Mr. BROWN, who was then the chief engineer, informed us that had there been a defective lamp or a naked light, or if one of the Davy lamps had become red-hot and dropped on the ground, or if the return air had passed over the furnace, there must have been a terrible catastrophe. More recently there were two very heavy outbursts of gas from the floor under the Silkstone coal at the Stafford Main Colliery, near Barnsley. In the first instance there was a rush of wind and dust with gas firing the lamps, which were soon extinguished, whilst two of the men were completely overpowered with the gas in one of the gates, and at another place a man was also left in a state of stupor. The lamps were extinguished with a current of air of 11,500 ft. per minute at a velocity of 360 ft. per minute, and meeting another current of 5500 ft. The fire-damp continued coming from the crack in reduced quantities for more than a month after the occurrence, and then gave off a small regular quantity. Fortunately the lamps used were the Stephenson, and all without defect, otherwise a serious explosion in all probability would have taken place. On the second occasion the gas came out strong enough to foul a strong current of air, being 10,000 to 12,000 per minute on the face, where it joined with 8000 ft. more per minute, for upwards of four hours after first coming off. At one place the noise was like the blowing off of steam. There was a crack under the solid coal, and the gas came out so strong that with 8000 ft. of air per minute the men could not get past it. Between two points there were 60 yards length of crack, besides continuing further into the goaf. A bore-hole was then made, and some interesting experiments were made. The hole was 2½ in. in diameter, and a gas-pipe of 1½ in. diameter was put down about 7 ft., the sides being rammed down solid. A steam-pressure-gauge was put on, and in 35 minutes it went up to 30 lbs. per square inch, and then, with a few seconds of rending and disturbance, the floor broke, and the gas spent at a crack some 2 yards from the hole, the gauge going back to 19 lbs. Tested by a meter, the gas given off was 930 ft. in 88 hours.

In another experiment the register rose to 101 lbs. per square inch. Besides the pressure registered, the gas was bearing a column of water from a depth of from 51 to 74 ft., being that depth where the gas discharged, which was equal to an average of 62½ ft. head of water, or 27 lbs. additional, thus making the actual pressure 128 lbs. per square inch. Mr. MILLER, the manager of the colliery, says, "With such a dangerous material in such terrible force under our feet, a safety-valve, such as is effected by boring in this way, might prevent such a force acting suddenly." He does not assume that all blowers of gas, or even most of them, come from the floor of the mine, but many do, and the crack is not discovered from being buried somewhere in the goaf where it may have found an easier line of fracture than in those cases where a long line of face was the easiest breaking point. It is evident, however, that fire-damp, whilst pent up in under conditions of very great tension or force. Mr. MILLER says that which appears most demonstrable with regard to outbursts is that whether the pressure of gas is at the depth from the surface or not it is lodged with an enormous amount of force, where the floor is thus impervious, and is acting against a lessening amount of resistance as the coal face advances, by whatever method of working. The question as to how such insidious, dangerous, and sudden outbursts of gas can in any way be met, so as to prevent accidents or loss of life is one of very great importance indeed, and well worth receiving the best consideration of our ablest mining engineers. One thing, however, is certain, after the serious calamity at Bunkers Hill Colliery, as well as the many that have preceded it at other places, that blasting in fiery seams of coal should be no longer tolerated.

#### COAL IN NOVA SCOTIA.

Coal was raised last year in Nova Scotia to the by no means unimportant extent of 872,720 tons. The value of this production was estimated at about \$2 per ton on an average, taken at the pit's mouth. In 1873, it appears, 881,106 tons of Nova Scotian coal were sold, but last year the sales fell off to 749,127 tons, showing a decrease in 1874 of 131,979 tons. In 1872 and 1873 trade was comparatively brisk, and hence there was a considerable external demand for Nova Scotian coal; but last year was a relatively dull period. In spite, however, of occasional checks, and occasional intervals of commercial depression, the consumption of Nova Scotian coal has exhibited a steady progress. Up to 1821 the quantity sold annually did not average more than 7000 tons per annum, but in 1830 the yearly total had risen to 27,269 tons. By 1836 the figures had expanded to 107,593 tons, and in 1846 they had grown to 147,506 tons. In the last 28 years the advance made has been much more rapid. Thus in 1856 the sales of Nova Scotian coal were 253,492 tons, and 558,520 tons in 1866. The demand went on growing after 1866, until, as already indicated, 881,106 tons were sold in 1873; last year the tide ebbed, but it will no doubt again begin to flow in a few months. At the same time, it must be confessed that Nova Scotian coal mining has scarcely made the progress which it might have been expected to achieve.

The demand for Nova Scotian combustibles has very greatly increased in Canada since the Canadian provinces were united into one powerful Dominion; but, in consequence of the increased attention devoted by the Americans to coal mining pursuits, the shipments of Nova Scotian coal to the United States have been rather slipping back during the last seven years. In 1874, for instance, the Nova Scotians supplied the Americans with 126,425 tons of coal less than they forwarded to the United States in 1873; formerly there was a good American demand for Nova Scotian coal for gas-making purposes; but the Americans now supply themselves with gas coal principally from their own mines, and they can do so upon comparatively cheap terms. The contract price of American coal in 1874, delivered at New York, was \$7.50 per ton. Cape Breton (or Nova Scotian) coal had to contend upon the New York market against an import duty of \$0.75 per ton, while the freight to New York was also \$4.00 per ton, so that altogether Cape Breton coal could not be delivered for consumption in the commercial capital of the United States for less than \$7.15 per ton. A balance of only \$0.35 per ton accordingly remained in favour of Nova Scotian coal, and this was so small a margin that it could not command the

trade. The only means by which Nova Scotian coal can be delivered at New York upon advantageous terms is clearly the employment of steam colliers instead of the sailing vessels at present in use.

It may be remarked that Great Britain, with the aid of steam colliers, is enabled to deliver coal profitably upon the markets of the West Indies, while Nova Scotia, although 2500 miles nearer to those markets, only delivers comparatively small quantities of its coal upon them. Another point which tells in favour of English coal, as opposed to Nova Scotian combustible, is the introduction in England of coal-cutting machinery, and, of course, the decline which occurred, upon the whole, in the price of English coal last year exerted a depressing influence upon the demand prevailing for the products of the Nova Scotian mines. What is clearly needed in Nova Scotia to enable her coal resources to be turned to more extended account is both more capital and more labour. Nova Scotia, from the thickness of her coal seams and her excellent geographical position, ought, one would think, to be able to supply the markets of Canada, the West Indies, and North and South America upon more favourable terms than any other country; but, as a matter of fact, we find that coal is being worked in only four Nova Scotian provinces—Cumberland, Pictou, Cape Breton, and Victoria—although it exists in several other parts of the province.

The amount of coal raised in 1874 in the four Nova Scotian counties in which coal mines are being worked was as follows:—Cumberland, 51,580 tons; Pictou, 410,876 tons; Cape Breton, 404,286 tons; and Victoria, 5996 tons. The falling-off observable last year in the production of Cape Breton county as compared with 1873 was more than 200,000 tons. The decrease in the Pictou district last year did not exceed 24,000 tons; the Cumberland mines nearly doubled their extraction last year, with every prospect, too, of a continued increase. Of the Nova Scotian coal raised last year, 214,965 tons were consumed in Nova Scotia herself, 162,269 tons went to Quebec, 78,841 tons to New Brunswick, 45,696 tons to Newfoundland, 41,948 tons to Prince Edward Island, 138,335 tons to the United States, 47,844 tons to the West Indies, &c. However, Nova Scotian coal mining is yet in its infancy.

#### THE COLLIERY EXPLOSION IN NORTH STAFFORDSHIRE.

(FROM A CORRESPONDENT.)

In the article upon this subject in the Journal of May 8, attention was drawn to the fact that there are colliery proprietors who would prohibit shot-firing where safety-lamps are requisite, and it was remarked that *prima facie* the employment of locked-lamps and the adoption of shot-firing in the same workings appear incongruous, but that, if the ventilation is perfect, mine managers of acknowledged ability and of much experience in their calling, sanctioned shot-firing even where lamps are used. The evidence forthcoming at the very thorough enquiry which took place at Talke was in all respects confirmatory of these remarks. Mr. HENRY HALL, the Government Inspector of Mines for West Lancashire and North Wales, who had assisted in furnishing information for the guidance of the Coroner and his jury, said that if there was perfect ventilation blasting could be done with safety, but that in a fiery mine it should take place in the night, or during a change of shifts. We quite concur. There are, we repeat, deposits of fossil fuel which would be profitless if the mineral should be brought down only by the wedge. The use of the wedge, though unquestionably a safer method of dislodging coal and of driving headways, is a tedious and an expensive method. If it should be enforced universally in fiery seams it would reduce considerably the profits of the colliery owner, and also the wages of the operative miner. Further, it would enhance the price of the commodity to the consumer. Nevertheless, the employment of the lamp in such seams as the Banbury ought to be surrounded with every salutary check. That blowing down coal is a more dangerous operation in mining than the wedging of coal the distressing accident at the Bunkers Hill Colliery abundantly testifies; but it does not thence follow that if such precautions as Mr. HALL named had been adopted, the more speedy and effectual method might not have been adopted with advantage. Gunpowder had been employed in the mine before wedging was practised, yet without accident. And the system of wedging seems to have been resolved upon to ensure better roofs to the main roads. That it was best to wedge instead of to blast for this purpose most mining engineers will admit when they remember how destructive to a roof the employment of gunpowder often proves. But its wisdom is demonstrated in the 600 yards of brows which have been driven in this colliery without the use of powder or other explosives, and which remain in a perfect state, even after their exposure to this explosion. When, however, we reach the question of getting coal to bank with the most profit to master and man, at the least cost, and, therefore, at the lowest price, gunpowder comes to our aid.

We feel much satisfaction in noting that the owners of the colliery are men of whom Mr. WYNNE could say that during the 23 years of his official life Mr. RIGBY had, regardless of expense, cheerfully carried out every suggested improvement that he, as Government Inspector, had made. Of this readiness Mr. WYNNE gave a notable proof by adding that when he showed Mr. RIGBY the fans employed by Messrs. BARBER and WALKER, at East Wood, that gentleman at once ordered one for both the Audley Colliery and also the Bunkers Hill Colliery. It was by the use of the fan that 200 cubic feet of air per minute was passed into the Banbury seam for every one of the 40 men who were employed in it at the time of the explosion. Such a quantity of air we all know is an ample supply, and if properly distributed should, unaccompanied by a sudden eruption of gas, have secured the men's safety. But was the air properly distributed, and were there any sudden eruptions? Mr. WYNNE, Mr. HALL, and Mr. GILROY all assert that it was not properly distributed, for it had been conveyed to the face of work in iron pipes, and not by bratticeing. The pipes secured plenty of ventilation at the face, but left the surrounding space insufficiently cleansed. That the foulness of this space would be enticement enough to an explosion seems to be the belief of Mr. HALL. Mr. WYNNE and Mr. GILROY, however, are not so certain upon this point. In truth, they appear to favour the theory that there was a sudden escape of gas mainly from the floor, and that this, combined with a probable escape from behind the dislodged coal after the shot was fired, brought about the calamity.

The facts supply us with a double moral, that pipes should be used but sparingly, and that in a fiery mine powder must be ignited solely under circumstances likely to produce the minimum sacrifice of human life. We had thought that to say this was only to repeat what most mining engineers know very well. But Mr. WYNNE is under a very decided impression that mine managers who have not had a large amount of experience are erring gravely in the wide adoption of iron pipes for the conveyance of air. He declared that pipes have been adopted far too much by newly-made managers, who, he added, "possess more theories than are entertained by scientific men." If the explosion at Bunkers Hill supplies a lesson which such managers need the enquiry into its causes will have furnished additional data upon which to check former conclusions held by people whose views command respect. It is by experience that we gain wisdom. If Mr. WYNNE could have his way it would be illegal for any colliery owner in this country to use gunpowder where locked lamps are necessary. He is convinced that if in this matter he could work his will both colliery owner and colliery worker would be benefited—the one in the increased value of his products, and the other in the less hazardous nature of his calling. We have already intimated that there ought not to be a necessity for the prohibitory step, but if in every day practice gunpowder cannot be used with the requisite caution, then this Journal would be the first to declare in favour of such legislation as that which Mr. WYNNE advocates. Our conviction is that there has been much improvement in recent years, and that, without being perfect, managers and miners are both more careful in the way in which they use that which has long proved a great boon to them. In its last bill the Legislature fenced round the employment of powder with increased precautions, and we are inclined to think that those precautions will have been emphasized by the loss of the 43 colliers who have fallen in this last explosion in North Staffordshire, with the result that the improvement recently observable will become even more apparent hereafter. If this should



not prove to be the case then, by all means, let the recommendation of the jury, that gunpowder should be discontinued in mines where safety-lamps are employed, be carried out.

#### FRENCH RAILWAY ECONOMY.

The traffic earnings of the vast French railway system known as the Paris, Lyons, and Mediterranean were scarcely so good last year as in 1873, a decline of 210,637*l.* having occurred upon the old network. Thanks, however, to the excellent and economical management of the council of administration, this falling off in the receipts was more than counterbalanced by a reduction effected in the working expenses to the extent of no less than 249,401*l.*, the net profits being thus larger by 38,764*l.* In 1873, the ratio of the working expenses to the traffic receipts upon the old network was 41.99 per cent.; in 1874 it was brought down to 40.46 per cent. Although the price of coal has lately fallen in France, as well as in Great Britain, the working of the Paris, Lyons, and Mediterranean was carried on last year with contracts concluded when the coal crisis was almost at its worst. At any rate, the average price of the coal consumed by the engines of the Paris, Lyons, and Mediterranean in 1874 was only 9*d.* per ton less than the corresponding average of 1873. But, on the other hand, the Council of Administration succeeded in largely reducing the coal consumption of the Paris, Lyons, and Mediterranean last year, the consumption of the twelve months having been brought down to 614,201 tons, as compared with 702,747 tons in 1873, and 625,295 tons in 1872. The reduction in the price of the coal consumed upon the system last year, as compared with 1873, was 22,280*l.*; but a much larger saving was effected by the economy brought to bear upon the consumption. Altogether the saving effected by the Paris, Lyons, and Mediterranean last year in the matter of its coal consumption was 139,800*l.* This was, of course, an economy not at all to be despised, although the revenue of the company from all sources last year was not less than 11,000,000*l.* The staff of the company brought great care to bear last year upon the composition of the trains, so that the weight drawn by each engine was somewhat larger; the weight carried by each truck was also greater last year than in 1873. The traffic was conducted with such increased care generally last year that the amount paid for compensation for damage and loss of goods, which stood in 1873 at 277,259*l.*, was brought down in 1874 to 151,974*l.*

While the Council of Administration of the Paris, Lyons, and Mediterranean brought great care to bear upon the economical working of the system last year, they did not at the same time neglect the maintenance of the permanent way. On the contrary, the outlay in the permanent way department was increased last year to 499,513*l.*, as compared with 354,141*l.* in 1873. The Council has come to the conclusion that steel rails will last 40 years, and that during the first five years they will only require to be renewed at the rate of two per 10,000 per annum, while in the case of iron rails renewals have after 12 years to be effected at the rate of no less than 12 per cent. per annum. Under these circumstances, the directors share the now very general opinion that it is advantageous to use steel rails upon all lines upon which the traffic presents a certain activity. They have accordingly not hesitated to renew with steel rails the main line from Paris to Marseilles, as well as some lines of secondary importance upon which it was impossible to defer re-construction operations.

In many respects French railway management appears to be worthy the attention of the English railway interest, as it affords some remarkable illustrations of the results derived from attention to details. Few English railways, we fear, are now worked at the remarkably low rate of 40.46 per cent. of the receipts, and few yield their shareholders or stockholders a return upon their original capital at the rate of 11 per cent. per annum. Yet both these results were attained last year upon the Paris, Lyons, and Mediterranean. The French are not overdone with railways; they have scarcely any duplicate and semi-useless lines, and the consequence is that although France is not so rich a country as Great Britain, French railways, as a rule, pay better than English ones. The French have practically fused their whole railway system into six great networks, the Paris, Lyons, and Mediterranean ranking first, with an effective group of 2462 miles of line. By this plan of reducing the number of companies useless competition is undoubtedly avoided, and every train is turned to the most useful possible account. Whether the public interests suffer from this absence of competition among French railway companies is a matter of some little doubt; but this is a difficulty which might be surmounted by stringent regulations in regard to rates and fares, and it is tolerably clear that the existing French railway system has not prevented the French from rallying in a remarkable manner from the disasters of the Franco-German war. Neither is there any demand on the part of the French public for the adoption of a competitive railway system in France; on the contrary, no opposition appears to have been offered to an official rejection of a project for a new arterial line from Calais to Marseilles.

**COAL IN NOVA SCOTIA.**—The following return of the sales of coal, from 1785 to 1874, is extracted from the report of Mr. Henry S. Poole, Government Inspector of Mines, and is believed to be the only correct table of the coal product of the British provinces that has been prepared:—

| Year         | Tons      |
|--------------|-----------|
| 1785 to 1790 | 14,349    |
| 1791 to 1800 | 51,048    |
| 1801 to 1810 | 70,482    |
| 1811 to 1820 | 91,527    |
| 1821 to 1830 | 140,520   |
| 1831 to 1840 | 239,981   |
| 1841 to 1850 | 1,533,798 |
| 1851 to 1860 | 2,399,829 |
| 1861 to 1870 | 4,927,379 |
| 1871 to 1874 | 3,012,565 |

Total coal sales.....Tons 13,081,708  
To which may be added colliery consumption 1,700,622 tons, making the quantity actually mined 14,782,330 tons. All tons of 2240 lbs.

**RUSSIAN COAL FIELDS.**—The coal fields of the Donetz, an affluent of the Don, are about to be traversed by a line of railway which will open up communications with the interior and the sea. The yield of that basin in 1873 was 41,000,000 pounds (36 lbs. each); as compared with 19,000,000 in 1872, 12,000,000 in 1871, 11,000,000 in 1870, and only 7,900,000 in 1869. That district alone is able to supply fuel for the consumption of all the countries bordering on the Black Sea and likewise the Bosphorus.

**RAISING COAL BY ATMOSPHERIC PRESSURE.**—A novel method of raising coal has been tried for some time in the Creuzot mining district in France. An air-tight tube is fitted from top to bottom within the shaft of the mine; in this tube a piston works; to this piston a cage is attached, in which the tubs of coal are placed, and the tube is further fitted with valves and doors for regulating the supply of air, and running the tubs in and out. Air being admitted beneath the piston, the latter ascends with the coal to the top, and at the same time more than 70,000 cubic feet of foul air is discharged from the mine, while a corresponding in-rush of fresh air enters from the surface down into the workings. The same apparatus which raises and lowers the tubs will also raise and lower the miners.

**COAL AND IRON IN THE UNITED STATES.**—In the course of last year, the Chicago, Burlington, and Quincy Railroad Company laid 52½ miles of steel rails in Illinois, and 29½ miles of steel rails in Iowa, in all 81½ miles. The whole extent of steel rails now in the track was thus carried to 286½ miles. English iron rails are quoted at \$48 to \$50 gold per ton at New York. American iron rails are quoted at \$48 to \$53 currency per ton at the works. The anthracite coal movement of Pennsylvania to April 17 this year amounted to 3,005,260 tons, against 4,222,775 tons in the corresponding period of 1874, showing a decrease this year of 1,217,515 tons. The bituminous coal movement of Pennsylvania to April 17 this year was 736,763 tons, against 663,625 tons in the corresponding period of 1874, showing an increase this year of 73,078 tons. Combining anthracite and bituminous coal together, we have thus a decrease of 1,135,437 tons in the coal movement of the State this year. Soft coal from Western

Pennsylvania has been coming forward freely, and does much to abate the inconvenience of the lessened supply of anthracite.

**COAL TRADE IN BELGIUM.**—Sir H. Barron, Secretary of the British Legation at Brussels, states that the quantity of coal raised in Hainaut in 1873 was 11,652,903 tons, about the same as in 1872, but its value was estimated at 17*s.* 4*d.* per ton, instead of 11*s.* The number of hands employed was 79,556, an increase of 5873 over 1872; and their annual wages averaged nearly 56*d.* per head, being an increase of 40 per cent. The cost of production is estimated at 0.641*l.* per ton, and the net profit at 0.223*l.* per ton. The quantity raised was only 146 tons per workman, or 104 tons less than in England—a fact which is cited as explaining how it is that, notwithstanding higher wages, English can undersell Belgian coal even in Belgium itself. The aggregate value of coal and coke exported from Belgium in 1874 (chiefly to France) was 5,130,883*l.*, or 687,677*l.* less than in 1873. Sir H. Barron describes the iron trade as suffering greatly. The steel manufactured in Germany has supplanted Belgian iron to a material extent. Iron fell back to its former prices, but these, in the face of the enhancement of labour and coal, were utterly unremunerative. When he made his report, in March, some orders had been sent to Belgium from Cardiff, and a faint hope of business had been awakened by the Welsh dispute, and rumours of more strikes in England. Sir H. Barron, however, declares that the exactions of the labouring class, a legacy of the coal famine, threatened to cripple every industry.

#### THE DARLSTON STEEL AND IRON WORKS.

For some time past various works have been in progress at this old and well-known establishment with the view of economising, as far as possible, the cost of production in every department, and of securing at a minimum charge a maximum quality of steel and iron. The arrangements are now so far perfected that we may venture to give an outline sketch of what is now conceded by all who have inspected it to be one of the most complete and best-planned iron-producing establishments in the Black Country. The works, which are situated about a mile from Wednesbury, were founded at the close of the last century, and for many years were carried on by the late Mr. Samuel Mills, one of the most successful of the South Staffordshire ironmasters. Mr. Mills was succeeded by Messrs. J. Foster Lloyd & Co., and the Lloyd family still retain an important interest in the undertaking, which is now carried on by the Darlston Steel and Iron Company (Limited). The total area of the company's property is 880 acres, under the whole of which lie some of the best of the South Staffordshire coal seams. The principal collieries of the company are at Essington and Spring Hill, where the brooch, cannel, and Bentley 4-ft. coals are in course of active development. The present output of the Essington and Spring Hill mines is at the rate of 1500 tons per week, but two additional shafts, now in course of completion, will shortly augment this weekly yield to 3000 tons. The plant of the old collieries has been lately renewed, and that of the new collieries is of the most substantial character. The pit-frame at the new Spring Hill Colliery (which was designed by Mr. Josephus Smallman, the company's mining engineer) is 70 ft. in height, and of excellent construction. The most notable enterprise now in progress in connection with these collieries is the construction of three miles of railway to bring the pits within direct communication with the Cannock mineral line. Steel rails are being laid down, and the whole of the work is of a most substantial character. Mr. Lovatt, of Wolverhampton, is the contractor, and he expects to complete the work in about six weeks. The company have already a private railway to the canal—the old Essington branch—which is on the highest table land in England, and into which these collieries are drained.

The other collieries of the company are at Darlston Green and Coterhill Farm, in the Black Country proper, the yield of which, added to that of the collieries just named, swells up the total output of the company to 3500 tons of coal and ironstone per week. Some difficulty has been experienced until lately at the Darlston Green and Coterhill Farm Collieries in the matter of drainage; but all difficulty has been entirely removed now by the erection of very powerful pumping plant, which is able to keep the inflow of water well under subjection.

The company have three blast furnaces at Darlston Green, all of which have recently undergone considerable modification and improvement. The two now in blast are, with one exception, the loftiest furnaces in South Staffordshire, and they are constructed on the newest and best principles for economising production. The fuel and ore are conveyed to the mouth of the furnace by a simple and inexpensive arrangement of hydraulic power. Close to the base of the furnaces are railway sidings for fuel and ore respectively, and the arm of the canal also comes alongside. The blast-engines have been renewed, and they are now of the most powerful character, the fixing of the beam under instead of over the cylinder being one of the noteworthy features. The furnaces turn out 300 tons per week of good quality pig-iron.

The finished ironworks contiguous to the blast furnaces comprise seven mills and a proportionate number of forges. Of the mills, one is devoted to the manufacture of light hoop, rods, and tip iron; two to bar and sectional iron; two to sheets; one to the heavier class of hoops; and one to strips. In the last-named mill Brown's patent machinery (of which the company have an exclusive license) is worked, and it is capable of turning out larger quantities of strip and greater lengths than any other strip mill in the kingdom. Strips are rolled at this mill 60 ft. long, and thus five or six ordinary lengths can be cut up with only two bad ends.

A special feature of production at these works is a homogeneous metal, which combines with the general properties of iron the toughness of steel. It is guaranteed to stand any test to which iron can be put, and it is largely used for tube and severe flanges.

The chairman of the company is Mr. Samuel Lloyd, of Birmingham, and the managing director is Mr. Francis Henry Lloyd, of Wednesbury, under whose personal supervision the new and spirited enterprises to which we have here alluded have, for the most part, been carried out.

#### REPORT FROM CORNWALL.

May 20.—Rarely has there been a time of such long-continued comparative inaction in mining matters. Week after week goes by with no change that is really worthy of note, for the somewhat frequent oscillations in the share market that are almost the only sign of life manifested are in themselves, as a rule, of very little importance. There never was so little to report upon, and for years there has not been a period at which there was less to direct one in attempting a forecast. We do not believe all we hear about Australia, and, therefore, we are not without hope, and that is wellnigh all that can be said. It is the old story—"Patience, patience, patience;" or as it may be otherwise put, "Work and wait."

Still, we are not without something to cheer us. If tin remains so persistently in the background, copper and lead are realising tolerably fair prices, and attention is being directed in many quarters to mines of this character. Coals, too, are steadily coming down in price, and they are now being delivered at miles, even so much as half-a-dozen miles, from a seaport for 18*s.* per ton. The quality also is improving, as the merchants are now able to procure coals from almost any colliery they choose. Labour, too, is cheaper, and mines are being worked for much less than at any period during the last three years; indeed, it is doubtful whether a very high price for tin is, on the whole, beneficial to shareholders, and many well-informed persons assert that with tin at from 60*l.* to 70*l.* per ton more profits are made than with tin at a higher price. It is a good thing that the horizon is not all overcast at once.

There is another point of congratulation in the fact that the demand for arsenic continues to be good. In several places where there are known to be large mundic lodes it is proposed to commence new works. It is generally expected that some of the adventurers will not only mine for mundic, but will also refine their arsenic, so as to combine the both profits. The present production of refined arsenic is about 6000 tons per annum, and a very large portion of this is used in the manufacture of dyes. Germany is one of our best foreign customers. Should the demand continue for a

reasonable time there is doubt the production will largely increase. Meanwhile the refiners are managing matters pretty much as they please, the manner in which the miner sells the raw arsenic being about the most unbusiness-like proceeding it is possible to imagine. The arsenic, after it is swept out of the flues where it is deposited, is put into heaps, after which the weight is estimated, and notice is given of sale. The refiners' agents attend on a certain day, and make their offers. The value of the arsenic, of course, depends on the percentage of fine arsenic it contains, but this is rarely ascertained, the buyer trusting to his judgment of the quality, and the seller trusting to chance as to what he shall get offered him. As the buyers are few in number there generally is some arrangement, but sometimes an outsider puts in an appearance, and this occasionally leads to an advance of 30 per cent. in the price. Miners should be more sharp. We need all the legitimate profits that can be made.

A Cornish mining case of some interest has just been disposed of. Plaintiff, Mr. T. T. Arnall, merchant, of Redruth, sued the defendant, Mr. Williams, the proprietor of the Bedford Colliery, Mold, Flintshire, at the Bristol Assizes in August, to recover the sum of 252*l.*, the price of some mining materials sold by the plaintiff to the defendant. A verdict was given for the plaintiff, with leave for the defendant to move for a new trial. Mr. Prideaux, Q.C., accordingly in September last moved for a rule for a new trial, which was granted, and the other day the case came on for argument in the Court of Queen's Bench; Mr. Cole, Q.C., M.P., with Mr. W. M. St. Aubyn, instructed by Mr. Holloway, Redruth, opposing on behalf of Mr. Arnall. The Court, after a lengthy argument, unanimously agreed that a new trial should not be granted, and the rule was discharged.

The meetings at Tincroft and Carn Brea, as we anticipated, passed off quietly. Capt. Abraham James was present at Tincroft, but had nothing to say, except to remark that the meeting was a fifteen-week one, and the adventurers evidently endorsed Capt. Teague's idea that a manager must have a little latitude, especially a manager who holds such a stake in a mine as 2241 shares out of 6000. Tincroft is looking well. So is Carn Brea, which would have made a profit had it not been for the 13 month's cost. The adventurers here took a very wise step in deciding that the extra month's cost should in future be apportioned over each of the four quarters instead of falling upon one. It is what we have often advocated since the five-weeks month was done away with; there have been several cases in which mines otherwise healthy have been thrown back hopelessly by this additional burden coming at a critical moment. South Crofty, we are glad to see, has made a profit, and looking promising.

#### REPORT FROM THE FOREST OF DEAN.

May 19.—Trade throughout the Forest is dull, very dull indeed, just at present, and we much fear that it will remain so for several months yet to come, as in the absence of activity in manufactures requiring the consumption of coal demand for household or block coal is not likely to be brisk during the summer season. As a result of a slack trade in coal the pits are idle in several instances two and even three days a week. This makes it bad for the workmen, and through them for the shopocracy, as when work is slack the circulation of money is materially checked, and this forcibly illustrates the fact how dependent we all are, more or less, one upon another. When, however, our additional railway outlets, now in course of construction, are completed, we shall look for an addition to our Forest trade. Some have expressed great disappointment and surprise that the reduction of prices of our coal did not give an impetus to our Forest coal trade; but the fact was that the reduction was too long delayed, the advance of spring and summer rendering the slow policy of bringing down prices too much like "locking the stable door after the mare was stolen."

The failure of the Amalgamated Association of Miners to support the Forest men in their late winter strike almost broke up the local Union, only about 400 members out of 4500 remaining. An attempt, however, is now being made to reorganise the men and unite the National Federation, this proposal being well received at a large meeting held on Thursday of last week in front of the Speech House. This meeting was also notable for another circumstance—namely, the delivery of a speech by Mr. H. D. Hoskold, engineer, in which he recommended to the men their clubbing together and purchasing and working co-operative collieries, which would furnish employment to the industrious, and encourage them by profitable returns from their investments. But to make such projects safe it is clear that such men as the recommender must superintend and direct operations, ordinary working colliers being incompetent for such positions. But will class prejudice permit the men to be guided by others than from among themselves? We shall see. The reception of the speech was everything that could be desired, and, without being sure of practical results in the form of local co-operative collieries, the present mental standing of the Forest colliers is very different from what it was ere the labour agitation began. They have yet much to learn and acquire; but it is very obvious to an intelligent observer that their education, by public meeting, friendly discussion, and the newspaper press, has been immensely advanced during the last half-dozen years. Fallacies and sophisms which would once gull or bamboozle them are now treated with derision by them. They are now becoming more reasonable, by trying to judge and decide by the evidence adduced in support of a proposition, nor can partial advocates, whether by the tongue or the pen, succeed so well as formerly. These advances are grounds for hope, provided their teachers are wise, fair, and candid in dealing with them. Mere assumption and authority will fail as the masses rise in intelligence. Whoso hath eyes and ears let him observe and hear.

#### REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

May 20.—Since our last report affairs have progressed steadily but surely towards a peaceful solution of the vexed question. The ranks of the men already at work are daily being augmented, although a great number of those who came out on strike still remain fixed to their determination not to go in at the masters' terms. How they will succeed, or what their ultimate destinies will be, it is, of course, difficult to predict; but judging from the fact that the masters are said to be refusing work to a lot of men who have, to some extent, identified themselves with the recalcitrant colliers, without absolutely belonging to them; and it is stated that many of these men put in an appearance with tools, expecting to be reinstated in their old places, but were told that they could not be allowed to resume work. If these men are served in such a way it must be painfully evident to the colliers on strike that their chance of again being employed is very remote. Many of the men who at the commencement of the lock-out left this locality in search of work elsewhere are now returning, and are being employed in their old pits; and there can be little doubt that as soon as the fact becomes generally known that work has been resumed the influx of strangers into the district will be great. Notwithstanding the 15 per cent. reduction men can still earn good wages, varying from 8*s.* to 12*s.* per day. The ironworks are beginning to show some slight signs of activity, and a few blast-furnaces have been blown in. This will of necessity cause a demand for more coal, and the ironworks colliers, at last, see some gleam of hope in the future. Before the general business of the many ironworks throughout the district can attain anything like its former healthy condition the present state of things will have to be considerably modified, if not revolutionised, and then inducements of no ordinary character will have to be held out to buyers in order to bring back their custom. But South Wales, with its many natural advantages and its wealth of raw material, can, if the masters and men only pull together, compete with all the world, both for price and quality of material. Should the whole of the masters for a time turn their attention to the production of iron alone they would soon retrieve the trade that has, for the present, been lost to the district. This, it would appear, some of them are anxious to do, and by cutting down their profits to the lowest remunerative degree they are offering inducements to buyers to give out fresh orders.

The manufactures are just now certainly leaving no stone unturned to procure work for their men, inasmuch as that the Midland and



Northern makers are complaining greatly that their South Wales competitors are underselling them in the market, which, as we before stated, they are in a position to do, provided they and the men work for their mutual advantage. This is assuredly a hopeful sign, and considerable good is augured from the fact. The shipment of railway iron is a little on the increase, and a few orders are finding their way into the market, but masters are in a position to execute a great deal more than comes to hand.

The Coal Trade appears to be in a state of complete stagnation, and shipments, either to the English or foreign markets, are on the most limited scale. Since the men resumed work large quantities have been sent to the surface, but at present prices there is nothing like a demand for it. As soon as prices drop a little and people commence to lay in their annual stock, some more activity may be anticipated. The Tin-Plate Trade needs but little or no observation. The market is still limited, and is likely to be so until a decided drop takes place in the cost of raw materials.

This week Sir George Elliot, Bart., Mr. Horatio Lloyd, Mr. Parkinson, and Mr. Laing met the other owners at their new colliery (the United Colliery Company's pits), and after carefully inspecting the colliery, they expressed themselves to be generally satisfied with the arrangements.

**TESTIMONIALS TO COLLIERY MANAGERS.**—A meeting of the Darnley Pit officials took place on Saturday in the general office of the Ocean Collieries, the occasion being the presentation of a testimonial to Mr. JOHN OWEN, the esteemed manager of the Darnley Pit, on his removal to the management of the Edward Pit of the same collieries, situated in the Ogmore Valley. The testimonial consisted of an address beautifully illuminated on vellum, a gold lever watch and chain, a writing cabinet, and an aneroid barometer. On Tuesday a meeting was held in the British Schoolroom for the purpose of presenting Mr. J. JEREMIAH, the respected manager of Hope Colliery, with a testimonial. The proprietors of the colliery, Messrs. H. and W. Powell, are also the owners of other collieries in the neighbourhood of Blackwood, the locality to which Mr. Jeremiah has been removed by promotion to undertake the management of the whole of the works. The testimonial consisted of a service of silver plate to Mrs. Jeremiah, and also a gold watch and chain, together with an affectionate and able address, to Mr. Jeremiah.

**NEW TUNNELS FOR PONTARDULAI.**—This rapidly-flourishing town, which seems to have become the chief rendezvous (within a good radius) for enterprise in the tin plate trade, has to congratulate itself upon the commencement of another tinworks, which is to be erected on a beautiful site, in close proximity to the junction of the London and North-Western Railway and Great Western Railway, under the superintendence of Mr. Josiah Griffiths, the late managing director of the Morlais Works, Swansea. The first sod of the foundation was removed on Tuesday by Mr. Edward Austin Williams, the proprietor of the land.

**COAL WINNING AT CAERPHILLY.**—Great success has attended the mining operations of the Llantwit and Black Vein Coal Company, under the management of Mr. P. Holmes. The company has sunk three pits a depth of 100 yards respectively. A short time ago the Little Rock vein was struck in No. 1 pit, but operations are to be carried on until the men find the Great Rock vein, which is expected shortly. On Monday, in No. 3 pit, another seam, over 5 ft. thick, was struck; the real thickness is not ascertained, but on Saturday evening the sinkers had gone through more than 5 ft., and had not pierced the seam; this seam will be worked through one of the other pits, and it is the intention of the company to sink to the steam coal.—*South Wales Daily News*

#### THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week the market has been quiet, as is usual at this holiday season, and less business has been done in all departments. In shares of iron and coal concerns, Benhar (all paid) are  $\frac{1}{2}$ ; ditto, New (3d. paid), 1s.; Bolekow, Vaughan A,  $\frac{1}{2}$ ; and Ebbw Vale,  $\frac{1}{2}$ —all lower. A small lot of Cairntables changed hands, also at a reduction of 1 16th. Scottish Australian is  $\frac{1}{2}$  lower at the ex div. quotations. Monkland ordinary shares have declined a trifle, but the 7 per cent. Guaranteed Preferences are firm, at an advance of  $\frac{1}{2}$ . Merry and Cuninghame are a trifle higher; the report of the directors, to be submitted to the meeting on the 25th inst., has been issued, and will be found referred to elsewhere in this report. Omoa and Cleland 10d. shares (4d. paid) have risen  $\frac{1}{2}$ , being now quoted at 2s. to 2s. 2d. South Cleveland Ironworks remain at 6 to 7. A good business has been done in United Bituminous Collieries 1d. shares (all paid) at  $\frac{1}{2}$ , but the market leaves off with sellers at that price. In shares of copper concerns, Canadian Copper Pyrites are 6d. cheaper, and the 2d. shares (all paid) of the Dunsley Wheel Phoenix Tin Mining (Limited) have changed hands at the very low price of 1s. each. Glasgow Caradon original shares are unaltered, but the new shares are a trifle higher. Huntingtons are firm at 43s. to 45s. Thariss improved to 25s., but the last price is almost the same as last week's. In gold and silver shares, Emma and Rica have improved; others unaltered. Emma touched 2, buyers, after hours on Saturday, but are now  $\frac{1}{2}$  to 1. A favourable telegram has been received about the Exchequer Mine, and has caused one or two enquiries for the shares. I. X. L. is at 1 to  $\frac{1}{2}$  nominally. Malpas,  $\frac{1}{2}$  to  $\frac{1}{2}$ , and Malabar also  $\frac{1}{2}$ . In oil shares, Young's Paraffin have improved  $\frac{1}{2}$ ; others unaltered; the Uphall meeting passed off very quietly. In miscellaneous, Scottish Wagons have been the only description dealt in, and they are unaltered. It is proposed to incorporate a company under the Companies Acts, 1862 and 1867, for the purpose of purchasing the business and property of the West Central Wagon Company (Limited) in the City of Worcester, a favourable opportunity now being afforded of doing so on very satisfactory conditions. The new company will be called the Worcester Railway Carriage and Wagon Company, and the necessity for forming it arose from the Articles of Association of the West Central Company not containing the usual powers for raising capital, but which is provided in the Articles of the new company. The capital is to be 91,140l., in 4557 10d. deferred shares, to be given in exchange to the shareholders of the West Central Company, and 4557 (10d.) 10 per cent. preferred shares, which are at present being issued. A detailed list of the several days' business follows:—

On Thursday last a moderate business was done. Benhar, all paid, done at 12s. and 12s. 6d., closing at these prices; new (3d. paid) shares, 70s. to 72s. Bolekow, Vaughan, A, done at 50s., closing 50s. to 51. Canadian Copper Pyrites done at 38s. 6d., closing 38s. 6d. to 39s. Ebbw Vale, 20s. to 20s. 6d. Emma opened at 35s., and were afterwards done at 35s. 6d., but close lower at 35s. 6d. to 36s. 6d. Glasgow Caradon done at 27s. Javall done at 13s. Merry and Cuninghame done from 67s. 6d. to 68s., closing at these prices. Rica,  $\frac{1}{2}$  to 5 16ths. Thariss opened at 24 11 16ths, but steadily improved to 25s., closing at that price. Young's Paraffin higher, at 5s. to 6s. Yorke Peninsula, ordinary,  $\frac{1}{2}$  to  $\frac{1}{2}$ .

On Friday a good business was done. Arncliffe changed hands at 154l. Benhar new (3d. paid) shares done at 71s., closing 70s. to 72s. Bolekow, Vaughan, A, done at 50s., closing 50s. to 51. Canadian Copper Pyrites done at 38s. 6d., closing 38s. 6d. to 39s. Ebbw Vale, 20s. to 21. Emma opened at 34s. 6d., and were afterwards done at 35s., closing 34s. 6d. to 35s. 6d. Glasgow Caradon better, done at 27s., closing 27s. to 28s.; new shares also better at 17s. to 17s. 6d. Javall, 13s. to 14s. Marbella, 9s. to 9s. 6d. Merry and Cuninghame done at 67s. and 67s. 6d., closing 66s. 6d. to 67s. Monkland 7 per cent. guaranteed preferences offered at 7s. Omoa and Cleland good at 46s. to 50s. Shotts Iron done at 73. Thariss opened at 25s., but afterwards improved to 25s., then declined to 24s., closing 23s. to 24s.; new shares done at 17. Young's Paraffin done at 6.

On Saturday a small business was done. Benhar new (3d. paid) shares, 70s. to 71s. Canadian Copper Pyrites done at 38s. 6d., closing 38s. to 39s. Emma done at 13s., but the price subsequently improved to  $\frac{1}{2}$  to 2s. Huntingtons, 43s. to 44s. Ilay Lead remain at  $\frac{1}{2}$  to  $\frac{1}{2}$ ; this company sold on the 7th inst 5 tons of ore at 14l. Merry and Cuninghame done at 67s. 6d., closing 67s. 6d. to 68s.; the report of the directors, to be submitted to the extraordinary general meeting of the company on the 25th inst., has to-day been issued, and annexed to it is a full copy of the vendor's proposal to take back the business, works, &c., embodied in a formal minute of agreement. His proposal is that the shareholders of the company shall pass a special resolution that the limited company be wound-up voluntarily, four of the directors being appointed liquidators, with power to take such professional assistance as they may deem proper. Mr. Merry to place in their hands such a sum as shall enable them—1. To pay to the registered shareholders on May 30 next the par value of their shares, with interest thereon at the rate of 5 per cent. from Dec. 31 last, when the last dividend was paid; and, 2. To repay to any shareholders who may have prepaid the calls on their shares the amount of such prepaid calls, with all interest thereon at the rate of 5 per cent. Mr. Merry is to pay all the debts of the company, including the amount due to debenture-holders, and shall also implement all the other obligations of the company. On Mr. Merry making these payments and satisfying the liquidators as to the payment of the debts and fulfilment of all the obligations of the company, they shall, at his expense, convey and make over to him, or to any person or persons to be named by him, the whole estate and assets of the company. The shareholders are to retain all dividends already received by them, and Mr. Merry is to pay the costs incurred by the committee of investigation of this agreement, and also of the winding-up, so that the shareholders will receive the par value of their shares and interest thereon as before stated, all without any deduction except that of income tax on such interest. The directors recommend the shareholders to accept this proposal, and state that since the last meeting the iron trade has become still further depressed, and the prospects of improvement are the reverse of encouraging. Moreover, the directors are advised that in the most favourable view which could possibly be taken of the rights of the shareholders they could not obtain more, and indeed would have to accept less, than is now offered. Should the proposal be rejected immediate calls will, in the present circumstances of the company, be inevitable. Monkland ordinary done at 60s., closing 59s. to 60s.; 7 per cent. guaranteed preference firmer, done at 7s., closing 7s. to 7s. 6d.; Omoa and Cleland done at 46s., closing 46s. to 47s. Scottish Australian shares lower, at 1s. to 1s. 6d.; at the meeting, on Monday, the report and accounts were adopted, and the

dividend of 1s. per cent. declared. The directors have since received advices from Sydney, with advices from the Lambton Colliery to March 15 last. The sales of coal for the month of February amounted to 12,586 tons. Thariss done at 25s., closing 24s. to 25s.; new shares, 16s. to 17. Young's Paraffin shares again higher, done at 6s., closing 6s. to 6s. 6d. Yorke Peninsula ordinary remain at  $\frac{1}{2}$  to  $\frac{1}{2}$ ; and the 15 per cent. guaranteed preferences (all paid), at  $\frac{1}{2}$  to  $\frac{1}{2}$ . The directors in London have lengthy advices from the committee of investigation at Adelaide, dated March 27 last; these continue of the same favourable character.

On Tuesday a small business was done. Benhar, all paid, lower, done at 12s. 6d.; new (3d. paid) shares also lower, at 60s. to 70s. Huntingtons, firm, at 43s. to 45s. Merry and Cuninghame, done at 68s. and 68s. 6d., closing 68s. 6d. to 69s. Monkland, ordinary, done at 60s., closing 59s. to 60s.; 7 per cent. guaranteed preference firm, done at 7s. Omoa and Cleland, done at 2s., closing 2s. to 2s. 6d. Rica,  $\frac{1}{2}$  to 5 16ths. Thariss, done at 25s. and 24s., closing at these prices. Young's Paraffin, done at 6s., closing 6s. to 6s. 6d.

On Wednesday the market was again quiet. Benhar, new (3d. paid) shares, done at 71s. and 70s. Cairntable changed hands at 8s. Emma, done at 38s. and 37s., closing 38s. to 37s. Huntingtons remain at 43s. to 45s. Kapunda, 1-16th to  $\frac{1}{2}$ . Merry and Cuninghame, done from 68s. to 69s., closing about 68s. 6d. Omoa and Cleland, done at 2s., closing 2s. to 2s. 6d. Scottish Australian, 1s. to 1s. 6d. Thariss, done at 24s., closing 24s. to 24s.; new shares, done at 17 and 16s., closing 15s. to 16s. Yorke Peninsula, ordinary,  $\frac{1}{2}$  to  $\frac{1}{2}$ . Young's Paraffin, done at 6s., closing 6s. to 6s. 6d. Scottish Wagons, all paid, 11s. to 12; new (3d. paid) shares, done at 51s. 6d., closing 51s. to 52s. Uphall Mineral Oil, 10l. shares, all paid, remain at 32l.; at the meeting, in the offices of the company in Glasgow, yesterday, Mr. Peter McLagan, M.P., of Pumphreton, presided, and the report and accounts were unanimously approved of. Subjoined are the latest prices:—

| Amount of share.            | Amount paid-up. | Name.  | Latest price. |
|-----------------------------|-----------------|--|---------------|
| 10                          | 10              | Arncliffe Coal (Limited) .....                             | 134s.         |
| 10                          | 10              | Benhar Coal (Limited) .....                                | 12s.          |
| 10                          | 10              | Ditto .....  | 3s.           |
| 100                         | 35              | Bolekow, Vaughan, and Co. (Limited) .....                  | A. 50s.       |
| 10                          | 10              | Cairntable Gas Coal (Limited) .....                        | 8s.           |
| 10                          | 10              | Chillington Iron (Limited) .....                           | 5s.           |
| 52                          | 29              | Ebbw Vale Steel, Iron, and Coal (Limited) .....            | 20s.          |
| 10                          | 10              | Fife Coal (Limited) .....                                  | 4s.           |
| 10                          | 10              | Glasgow Port Washington Iron and Coal (Limited) .....      | 2s.           |
| 10                          | 10              | Ditto All paid .....                                       | 4s.           |
| 10                          | 10              | Lochore and Caplehead (Limited) .....                      | 7s.           |
| 10                          | 10              | Marbella Iron Ore (Limited) .....                          | 4s.           |
| 10                          | 10              | Merry and Cuninghame (Limited) .....                       | 68s. 6d.      |
| 10                          | 10              | Ditto All paid .....                                       | 9s.           |
| 10                          | 10              | Monkland Iron and Coal (Limited) .....                     | 3s.           |
| 10                          | 10              | Ditto 7 per cent. Guaranteed Preference .....              | 7s.           |
| 100                         | 100             | Nant-y-Glo and Blaen-y-Don Ironworks pref. (Limited) ..... | 2s.           |
| 10                          | 10              | Omoa and Cleland Iron and Coal (Limited) .....             | 2s.           |
| 1                           | 1               | Scottish Australian Mining (Limited) .....                 | 1s.           |
| 1                           | 1               | Ditto New .....  | 3s.           |
| 60                          | 50              | Shotts Iron .....  | 7s.           |
| 10                          | 4               | Ditto New, issued at 2s. premium .....                     | 6s.           |
| COPPER, LEAD, SULPHUR, TIN. |                 |  |               |
| 10                          | 7               | Canadian Copper Pyrites (Limited) .....                    | 38s. 6d.      |
| 10                          | 10              | Ditto All paid .....                                       | 6s.           |
| 10                          | 7               | Cape Copper (Limited) .....                                | 35s.          |
| 10                          | 5               | Drake Wall .....   | 6s.           |
| 2                           | 1               | Dunsley Wheel Phoenix Tin Mining (Limited) .....           | 1s.           |
| 1                           | 1               | Glasgow Caradon Copper Mining (Limited) .....              | 27s.          |
| 1                           | 15s.            | Ditto New .....  | 17s.          |
| 1                           | 5s.             | Gunnislake (Clitters) .....                                | 1s.           |
| 10                          | 9               | Huntington Copper and Sulphur (Limited) .....              | 43s.          |
| 1                           | 1               | Ilay Lead (Limited) .....                                  | 1s.           |
| 26s.                        | 23s.            | Kapunda Mining (Limited) .....                             | 1s.           |
| 4                           | 4               | Panulio Copper Mining (Limited) .....                      | 1s.           |
| 10                          | 10              | Rio Tinto (Limited) .....                                  | 9s.           |
| 10                          | 10              | Russian Copper Mining (Limited) .....                      | 3s.           |
| 10                          | 6               | South Rooker .....   | 6s.           |
| 10                          | 10              | Thariss Copper and Sulphur (Limited) .....                 | 24s.          |
| 10                          | 7               | Ditto New .....  | 16s.          |
| 10                          | 60s. 6d.        | West Maria and Fortescue .....                             | 1s.           |
| 1                           | 1               | Yorke Peninsula Mining (Limited) .....                     | 3s.           |
| 1                           | 5s.             | Ditto 15 per cent. Guaranteed Preference .....             | 3s.           |
| GOLD, SILVER.               |                 |  |               |
| 5                           | 5               | Colorado Terrible Mining (Limited) .....                   | 3s.           |
| 20                          | 20              | Emma Silver Mining (Limited) .....                         | 37s.          |
| 10                          | 10              | Flagstaff Silver Mining (Limited) .....                    | 3s.           |
| 2                           | 2               | Javall Company (Limited) .....                             | 13s. 9d.      |
| 1                           | 1               | Lea Chance Silver Mining (Limited) .....                   | 1s.           |
| 1                           | 1               | Rica Gold Washing (Limited) .....                          | 1s.           |
| OIL.                        |                 |  |               |
| 10                          | 7               | Dalmenay Oil (Limited) .....                               | 111s. 6d.     |
| 5                           | 5               | Midlothian Mineral Oil (Limited) .....                     | 3s.           |
| 10                          | 10              | Uphall Mineral Oil (Limited) .....                         | 3s.           |
| 10                          | 10              | West Calder Oil (Limited) .....                            | 1s.           |
| 10                          | 8s.             | Young's Paraffin Light and Mineral Oil (Limited) .....     | 6s.           |
| MISCELLANEOUS.              |                 |  |               |
| 10                          | 10              | Conglog Slate and Slab (Limited) .....                     | 10s.          |
| 10                          | 9               | Highland Peat Fuel (Limited) .....                         | 7s.           |
| 50                          | 25              | London & Glasgow Engineering & Iron Shipbuilding .....     | 20s.          |
| 1                           | 1               | North Cornwall Koolin (Limited) .....                      | 1s.           |
| 20                          | 9s.             | Peruvian Nitrate (Limited) .....                           | 1s.           |
| 10                          | 10              | Scottish Wagon Company (Limited) .....                     | 12s.          |
| 10                          | 2               | Ditto New .....  | 51s. 6d.      |

Last day for this account May 27; settling day, May 31.

NOTE.—The above list of mines and auxiliary associations is as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch investors are interested. In the event of any being omitted, and parties desiring a quotation for them and such information as can be ascertained from time to time to be inserted in this list, they will be good enough to communicate the name of the company with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and Share Broker.

Post Office Buildings, Stirling, May 20.

#### REPORT FROM LANCASHIRE AND CHESHIRE.

May 20.—By reason of the Whitsun holidays, business is this week almost at a standstill in Lancashire, and there is no change to report in the position and prospects of the Coal and Iron Trades. The tendency of coal prices is, however, still downwards.

The enquiry as to the disaster at the Barrowshaw Colliery, by the flooding of which, as already reported in the Journal, four lives were lost, was closed on Monday at Oldham, Mr. Molesworth being the coroner. The principal witness was Mr. Mayall, the proprietor of the colliery, and from him it was elicited that a year ago Mr. Dickinson, Her Majesty's Inspector of Mines for the district, had called his attention to the state of the books at the colliery, and he then promised that he would see that everything proper in the way of making entries was done. It now transpired that the book in which should have been placed entries showing the state of the working was blank, and that Mr. Mayall had failed to carry out the undertaking he had given to the Inspector. The coroner summed up, directing the attention of the jury to the principal features of the evidence, and a verdict was returned to the effect that the deceased had lost their lives through an unforeseen accident. At the same time the jury expressed the opinion that the manager's books had been kept in a very loose manner.

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

May 20.—The Whitsun holidays have absorbed all attention this week in the coal and iron districts of Staffordshire, and there is in consequence little to add to our last report. In South Staffordshire the collieries, mills, and forges resumed operations in some cases to-day (Thursday), but in the majority of instances they will remain closed until Monday. The Cannock Chase coalowners have definitely resolved that no change in prices shall be made for the present, and it is improbable that any reduction will be announced for some little time to come by the firms in the Dudley and Wolverhampton districts. The available supplies of local ironstone are very restricted, most of the mines in the district having been inoperative for some little time past. Prices are without change.

In the South Staffordshire Iron Trade the movements of the week have been unimportant. Pig-iron is in steady but quiet demand, and prices remain at 3l. 2s. 6d. for cinder and 5l. to 5l. 5s. per ton for best native all-mine. A fair medium quality of pig-iron, mixed cinder and mine, is realising 4l. per ton. Cold-blast Lillleshall pig is very firm at 6l. 10s. per ton, and with a well-sustained demand. Finished iron manufacturers report a continued buoyant enquiry for sheets, important Russian orders for which are in course of execution. Branded iron is steady in price on the basis of 10l. 10s. to 11l. 12s. 6d. for bars, according to quality, but the demand, except in the sheet department, is very restricted.

The Essington coal field, midway between Cannock Chase and the Black Country, is just now the scene of spirited enterprise, and the mineral resources of the district are likely to undergo very vigorous development. The Himley Colliery Company have a powerful plant at work; and another plant, capable of raising 4000 to 5000 tons of coal per week, is being put down by the Essington Colliery Company. The Darlston Steel and Iron Company, who have a leasehold estate of 600 acres, have three plants at work, and two more in course of completion. Hitherto the only available

means of transit for the Essington minerals has been by a branch of the Wyrley Canal, but the company last named have on the point of completion a railway three miles long connecting their collieries with the Cannock Chase mineral line, and parliamentary powers have just been obtained for the construction of a railway which will bring the Essington district into direct communication with Wolverhampton.

To-day's quotations on the Birmingham Stock Exchange included—Sandwell Park Colliery, 34; Chillington Iron, 5s. to 6s.; John Bagnall and Sons (Limited), 6; Patent Nut and Bolt, 5s. prem.; Patent Shaft and Axles, 4s. prem.; Cannock and Huntington, 4 dis., buyers; Pelsall Coal and Iron, 4 dis.; and Muntz's Metal (10 paid), 19s. The general tone of the market is steadier.

The North Staffordshire coal and iron masters received on Friday evening, at a representative meeting at Stoke, a deputation of the miners to discuss the notice given on May 1 for a 10 per cent. wages reduction, to take effect from last Saturday. The men asked that the notice should be postponed for a fortnight, but to this the masters would not agree, declaring the notice they had given to be imperatively necessary, offering to give the men ample information to corroborate and confirm that statement. Owing to the holidays it is not possible yet to determine what course the men really propose taken in the matter.

**MESSRS. JOHN BAGNALL AND SONS (Limited).**—The annual general meeting of shareholders was held at the Great Western Hotel, under the presidency of Mr. John Richardson. The report, which showed a loss on the year's working of 10,550l. 9s. 2d., was, after considerable discussion, adopted, and the retiring directors and auditors were re-elected. The meeting was then made special for the reception of the report of a committee of investigation appointed some time ago to enquire into the circumstances attendant on the formation of the company. The committee reported that, after a careful investigation, they were satisfied that neither Mr. H. Barclay, Mr. Edward Gem, nor Mr. S. S. Lloyd, jun., had any knowledge of the existence of the contract with Mr. Carlton previously to its disclosure at the end of last year, and that the fact of the existence of the contract was intentionally withheld from them and the shareholders. They considered this altogether unjustifiable, and though they thought that such concealment had not affected the constitution of the company, they had no doubt that the rights and interests of the shareholders had been seriously prejudiced. After setting forth the circumstances as to the formation of the company which had come to their knowledge, the committee said they had taken counsel's opinion upon the point. Some of the parties concerned had made overtures for settlement, but they were not such as could be recommended for acceptance. Acting upon legal advice, therefore, the committee recommended that authority should be given to institute proceedings for obtaining full and complete relief, the committee believing that substantial compensation would be obtained. The whole of the recommendations were unanimously adopted.—*Birmingham Daily Post*.

#### THE IRON TRADE.

The iron trade is at present passing through one of those crises which appear to arise once every six or seven years in its history. Naturally the danger is most threatening where there has been the most rapid growth and expansion—namely, in the North of England. The condition of the trade was, perhaps, never more perilous, nor required greater prudence and judgment on the part of those responsible for its welfare. Several heavy failures have occurred, and more will undoubtedly follow if the tide of doubt and suspicion which has set in be not quickly stemmed. When bankers suddenly withdraw the facilities which have for years been ungrudgingly granted to a hitherto thriving and prosperous district, the effect may be in some respects beneficial, but it may be purchased at a cost which those who produce it may find somewhat expensive.

The question is, Is the iron trade really unsound? Has it ceased to be a profitable staple, and is the present depression likely to be lasting?

It is undoubtedly a trade liable to severe alternations of adversity and prosperity, but, on the whole, it has been signally prosperous, and has advanced truly by "leaps and bounds."

In 1852 the capital embarked in the iron trade in the North of England did not exceed 300,000l., and the whole manufacture of iron did not exceed a value of 500,000l. In 1874 the capital employed in the trade was variously estimated at from 5,000,000l. to 6,000,000l., while the value of pig-iron and manufactured iron produced amounted to 15,000,000l. The growth of the Middlesbrough, Stockton, and Hartlepool has been one of the most remarkable features of the past quarter of a century.

Of the 6,000,000l. of capital now sunk in machinery, plant, buildings, &c., fully 5,000,000l. has been the result of untiring industry and thrift. Scarcely a moneyed man has ever come into the district, and it is a curious fact that, except two, there is not yet a grey-haired man in the iron trade in Middlesbrough, Stockton, or Hartlepool.

This great growth has been several times arrested, and despairing croakers have been as prophetic of evil things to come in years past as they are at the present moment. But after a year or two of dulness there has been the invariable rebound, enduring for several years, when manufacturers have flourished, and the producing power of the district has been largely developed.

Profits have been invariably spent on additional works, and when, as happened in a recent case, bankers shut up their pockets, the struggling manufacturer has to go to the wall, although it is confessed, if his works and plant could be turned in a month's time into cash—which is impossible—he would have sufficient to pay his creditors 40s. in the pound.

In 1852 there was a general impression that pig iron, which in the early part of the week was 36s. per ton, would never see 40s. again. By the end of the year the price was 65s. per ton, all other descriptions of iron advancing in similar proportions.

In the panic of 1857 a similar state of affairs supervened. In 1866, when all English railways fell into discredit, it was generally believed that the iron trade had passed its highest powers of demand and production, and that no good could be expected from it again. Pig-iron fell to 51s. per ton, and remained there for a long time; but in 1871 we saw it at 140s., and such a demand accompanied this price that a large stock of nearly 700,000 tons was cleared off, while production itself had made unprecedented strides.

For a year and a half the trade has been in a languishing and unprofitable state. Manufacturers have lost money, but not a fleabite of their earnings. The bad debts of merchants have, on the whole, not been serious.

When the worst has come the tide turns, and there are symptoms that the dulness which has pervaded the whole commercial world is beginning to lessen. Wherever civilization spreads iron will be in request, and there is no reason to fear either that as a great staple of this country it will be in less request or that any other country can beat us in the race of competition.

If the timidity of some and the shortsightedness of others should cause the present depression to be the cause of widespread ruin and disaster in a district which has been remarkable for its industry and integrity, it will indeed be a matter of very great regret.—*X.: Times*.

**THE INVENTORS' INSTITUTE, AND THE NEW PATENT BILL.**—A public conference, convened by Sir ANTONIO BRADY, president of the Inventors' Institute, is to be held at the hall of the Society of Arts on Tuesday, and in a circular issued by the secretary of the said Institute, Mr. F. W. CAMPBELL, all interested are invited to attend, and he impresses upon them the importance of their giving their aid in this matter, it being considered that without energetic concerted action the Bill is likely to pass with the retention of its very objectionable provisions, which will allow a few Government officials to exercise a practically irresponsible veto on protection for inventions, together with other clauses prejudicial to the interests of inventors, and (as is generally thought) injurious to the public welfare. In addition to all which the absence of any appreciable reduction of the present high scale of stamp duties (often asked for by inventors) renders the Bill one that ought to receive the most earnest consideration of all interested in the industrial prosperity of the country. With the view to limit the discussion to matters of unanimity of opinion, a series of resolutions agreed to at a preliminary conference at Sir ANTONIO BRADY'S, on April 23, will be submitted for the consideration of the meeting, and as far as practicable will be adhered to.



## GLASGOW AND THE HIGHLANDS.

**ROYAL ROUTE, VIA CRINAN AND CALEDONIAN CANALS.**  
By Royal Mail Steamer, IONA, from GLASGOW, daily at Seven A.M., and from GLENCOCK at Nine A.M., conveying passengers for OBEAN daily; FORT WILLIAM and INVERNESS, every Monday, Wednesday, and Friday.  
For sailings to GLENCOCK, GAIRDOCH, ROSS-SHIRE (for Loch Maree), STAFFA, IONA, MULL, KEYS, LEWIS, and WEST HIGHLANDS, see bill with Map and Tourist Fares, free, at CHATTO AND WINDUS, Booksellers, 74, Piccadilly, London; or by post on application to DAVID HUTCHESON AND CO., 119, Hope-street, Glasgow.

## PATENTS FOR INVENTIONS BILL.

**A PUBLIC CONFERENCE OF ALL INTERESTED** (convened by Sir ANTONIO BRADY, President of the Inventors' Institute), will be held at the Hall of the Society of Arts, John-street, Adelphi, London, W.C. (kindly lent for the occasion), on TUESDAY, the 26th May inst., at Four o'clock (in the afternoon), to consider the course to be pursued to amend the Bill now before Parliament, which, if passed in its present form, will be very injurious, not only to inventors, but to the commercial and industrial interests of the country.

**THE CORNWALL MINERAL SYNDICATE.**  
26, MOORGATE STREET, LONDON, E.C., are instructed to RECEIVE APPLICATIONS FOR SHARES in the COVERACK GRANITE COMPANY, West Cornwall. Conducted on the Cost-Book System, in 5000 shares, of which 1800 remain for subscription at £1 each.  
Minimum dividend payable estimated at about 16 per cent. per annum.  
The SHARE LIST will be CLOSED in a FEW DAYS.  
Prospectuses on application.

## THE CRENVER AND WHEEL ABRAHAM UNITED MINES COMPANY (LIMITED).

At an EXTRAORDINARY GENERAL MEETING of the members, held at the Cannon-street Hotel, in the City of London, on Thursday, 13th May, 1875, the following resolutions were passed:—  
1.—That it having been proved to the satisfaction of the company that the company cannot, by reason of its liabilities, continue its business, and that it is advisable to wind-up the same; that the same be wound-up voluntarily accordingly.  
2.—That Alfred Good, of 7, Poultry, in the City of London, public accountant, Captain Graham Edwards, and George Stratton be and are hereby appointed Liquidators of the company.  
GEORGE STRATTON, Chairman.

## TANKERVILLE MINING COMPANY (LIMITED).

Notice is hereby given, that the ORDINARY GENERAL MEETING of the shareholders in the Tankerville Mining Company (Limited) will be HELD at the office, No. 8, Austin Friars, in the City of London, on TUESDAY, the 1st day of June next, at Two o'clock P.M. precisely.  
J. H. MURCHISON, London Manager.  
8, Austin Friars, London, 19th May, 1875.

## THE NEW QUEBRADA COMPANY (LIMITED).

Notice is hereby given, that an ORDINARY GENERAL MEETING of this company will be HELD at the City Terminus Hotel, Cannon-street, on THURSDAY, the 3rd June, 1875, at One o'clock P.M., for the purpose of receiving the directors' report, with balance-sheet and statement of accounts, and for transacting the ordinary business of the company.  
And notice is hereby further given, that the Transfer-books of the company will be closed from Tuesday, 1st June, until Monday, 14th June next, both days inclusive.  
By order of the Board,  
T. G. GILLESPIE, Secretary.  
11, New Broad-street, E.C., May 18th, 1875.

## RAILWAY CARRIAGE COMPANY (LIMITED).

ESTABLISHED 1847.  
OLDBURY WORKS, NEAR BIRMINGHAM.  
MANUFACTURERS OF RAILWAY CARRIAGES AND WAGONS, and EVERY DESCRIPTION OF IRONWORK.

Passenger carriages and wagons built, either for cash or for payment, over a period of years.

RAILWAY WAGONS FOR HIRE.

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THE BIRMINGHAM WAGON COMPANY (LIMITED)

MANUFACTURE RAILWAY WAGONS OF EVERY DESCRIPTION, for HIRE and SALE, on immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract.

EDMUND FOWLER, Sec.

WAGON WORKS, SMETHWICK, BIRMINGHAM.

\* Loans received on Debenture; particulars on application.

ROAD STEAMERS, NEW AND SECONDHAND.

5 horse power, Thomson's Patent; maker's firm in liquidation. RARE OPPORTUNITY TO BUY CHEAP.

Details and prices, FULLARTON, CUNDELL, AND CO., 87, Union-street, Glasgow.

COAL WAGONS FOR HIRE.—THIRTY 8 ton COAL WAGONS,

with side and end doors, nearly new, TO BE LET ON HIRE, or on DEFERRED PURCHASE LEASE.

Apply to "H. H." MINING JOURNAL OFFICE, 26, Fleet-street, London.

FOR SALE:—

A 50 in. cylinder PUMPING ENGINE.

A 40 in. cylinder PUMPING ENGINE, with 10 ton BOILER.

A 22 in. cylinder WINDING ENGINE, and CAGE.

A COMPOUND ENGINE, with 6½ in. and 11½ in. cylinders.

For particulars and price, apply to—

WILLIAM MATHEWS, ENGINEER, TAVISTOCK.

THE ROCK-BORING CONTRACT COMPANY.

DARLINGTON'S PATENT ROCK-BORING MACHINERY.

OFFICES, 2, COLEMAN STREET BUILDINGS, MOORGATE STREET, LONDON.

FOR TUNNELLING, DRIVING LEVELS, CROSS-CUTS, AND SINKING SHAFTS.

TYNE CAST MALLEABLE IRON COMPANY,

WORKS: TEAMS, GATESHEAD;

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MANUFACTURERS OF ALL DESCRIPTIONS OF

MALLEABLE IRON CASTINGS, delivered in London, carriage free.

THE

PATENT COTTON GUNPOWDER COMPANY

(LIMITED)

Are now PREPARED TO SUPPLY their BLASTING POWDER, No. II, in bulk and in cartridges of all sizes. This Powder is superior to any Mining Explosive available to the public or known to science.

ITS MANIPULATION IS EASY.

ITS ECONOMY GREAT.

ITS SAFETY ABSOLUTE.

It can be sent by all railways and the principal canals at gunpowder rates.

Printed details and prices will be transmitted on application, and a representative of the company will attend on requisition from Mine Superintendents or Quarry Owners desirous of judging of the value of this new explosive.

Application to be made to the Superintendent at the Works at Oare, near Faversham, Kent.

THE TAVISTOCK IRONWORKS, ENGINEWORKS

FOUNDRY, AND HAMMER MILLS,

TAVISTOCK, DEVON.

NICHOLLS MATHEWS, AND CO.

ENGINEERS, BRASS AND IRON FOUNDERS,

BOILER MAKERS AND SMITHS.

MAKERS OF

CORNISH PUMPING, WINDING, AND STAMPING ENGINES; STEAM

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SHOVELS, AND HAMMERED IRON FORGINGS OF EVERY

DESCRIPTION.

Also of SPUR, MORTICE, MITRE, BEVEL, and other WHEELS, of any diameter up to 12 feet, made by Scott's Patent Moulding Machine, without the aid of patterns, and with an accuracy unattainable by any other means.

MACHINERY, or FOREIGN MINES carefully prepared.

SECONDHAND MINING MACHINERY, in good condition, always on sale moderate prices.

On Monday, May 31, will be published, in Three Volumes, medium 8vo, with above 2000 woodcuts, price 25 s. cloth, or 26 s. half-bound in Russia,

UR'S DICTIONARY OF ARTS, MANUFACTURES, AND MINES, containing a CLEAR EXPOSITION of their PRINCIPLES and PRACTICE. Seventh edition, re-written and enlarged.

Edited by ROBERT HUNT, F.R.S., Keeper of Mining Records. Assisted by numerous contributors eminent in Science and familiar with Manufactures. London: LONGMANS and Co.

ANNUAL RECORD OF SCIENCE AND INDUSTRY FOR 1874.

Edited by SPENCER T. BAIRD.

8vo. cloth, pp. clv. — 66s. 9s.

London: TRUBNER and Co., 57 and 60, Ludgate Hill.

## In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the GREAT ROYALTY TIN MINING COMPANY.—ALL CREDITORS or CLAIMANTS of the above-named company, who have not received notice from the Official Liquidator thereof that their claims have been already admitted, are hereby required TO COME IN and PROVE their several DEBTS or CLAIMS at the Registrar's Office, Truro, on Friday, the 4th day of June next, at Eleven o'clock in the forenoon; or, in default thereof, they will be EXCLUDED from the BENEFIT of any DISTRIBUTION made before such proof. And for the purpose of such proof they are either to attend in person, or by their solicitors or competent agents, at the time and place above mentioned.

FREDERICK MARSHALL, Registrar.  
Dated Registrar's Office, Truro, the 18th day of May, 1875.

## In the Court of the Vice-Warden of the Stannaries.

Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACT, 1862, and of the TRELEIGH WOOD UNITED MINING COMPANY.—ALL CREDITORS or CLAIMANTS of the above-named company, who have not received notice from the Official Liquidator thereof that their claims have been already admitted, are hereby required TO COME IN and PROVE their several DEBTS or CLAIMS at the Registrar's Office, Truro, on Friday, the 4th day of June next, at Twelve o'clock at noon; or, in default thereof, they will be EXCLUDED from the BENEFIT of any DISTRIBUTION made before such proof. And for the purpose of such proof they are either to attend in person, or by their solicitors or competent agents, at the time and place above mentioned.

FREDERICK MARSHALL, Registrar.  
Dated Registrar's Office, Truro, the 18th day of May, 1875.

## TO COLLIERY PROPRIETORS, MINING ENGINEERS, CONTRACTORS, AND OTHERS.

WHEATLEY KIRK AND PRICE are favoured with instructions from Mr. W. H. Wood TO SELL, BY AUCTION, on Monday, May 24, at Eleven for Twelve o'clock prompt, on the premises, Spear-street, Stevenson-square, Manchester, the valuable

STOCK OF ENGINES, &c.,

Including a very fine PAIR of 22 in. horizontal WINDING ENGINES, 4 feet stroke, 11½ centres, 10 ft. round rope drum, forged cranks, 10½" shaft brake gear, reversing motion, &c., complete. Another PAIR of similar construction, 12 in. cylinders, 22 in. stroke, with 6 ft. drum. A smaller PAIR, same construction, 8 in. cylinders, 16 in. stroke, without drum. A set of SPAN WINDING GEAR, with 4½ ft. drum, 4½ ft. spur wheel, pinion, shaft, and pedestals. TWO 6 ft. DRUM SIDES, in halves.  
New 12-horse PORTABLE ENGINE, having two 7½ in. cylinders, locomotive crank shaft, reversing gear, fly wheel, &c., and all latest improvements.  
Donkey and force pumps, steel wire rope, sinking hoppers, valves, weighing machine, chains, pulley blocks, derrick poles, and other miscellaneous items.  
Further particulars on application to the Auctioneers, Albert-square, Manchester.

BY ORDER OF THE LIQUIDATOR.

SALE OF VALUABLE MINING PLANT AND MACHINERY IN THE ISLE OF MAN.

MESSRS. J. LEES AND CO. have received instructions TO SELL, BY AUCTION, at the Great Mona Mine, in the parish of Maughold, near Ramsey, on Thursday, the 27th day of May, 1875, the WHOLE of the

COSTLY PLANT AND MACHINERY.

In condition nearly equal to new, comprising—

A 40 ft. WATER WHEEL, 4 ft. breast, with powerful drawing machinery, double or single action, with balance bob and connection; 50 fms. pumping gear, with shaft rods, &c.; about 20 fms. of main rod; 55 fms. of ladders; 8 cwt. of jumper steel; a dial and stand; a crab winch, and about 25 fms. 15 lbs. in. chain; quantity of new and old wire and hemp ropings; 2 capstan pulleys, 4 ft. diameter; 2 powerful screws; about 360 ft. of launders and stands; set of beam scales and weights; quantity of scrap iron; hoop iron; rod bolts, nails, old castings, &c.; 6 large iron pipes, 8 ft. 3 in. by 18 in. diameter; several lots of timber; smiths' tools, complete; quantity of miners' ditto; office fittings, &c.—which will be SOLD BY AUCTION on Thursday, the 27th day of May, at One o'clock precisely. The whole of the Plant and Machinery, together with the Leases, will be offered first in One Lot, and if not sold will be immediately offered in suitable lots. On view the morning of sale.

Auctioneer's Offices: 86, London Wall, E.C., London; and St. James's Chambers, South King-street, Manchester.

STAFFORDSHIRE.

THE SHENSTONE HALL ESTATE.

An important and highly valuable property, the whole (with the exception of about three acres leasehold for lives) being freehold, comprising about FIVE HUNDRED AND SIXTY ACRES of capital agricultural LAND, in arable and pasture, in first-rate condition and well timbered, most compactly situated, within two miles of the City of Lichfield, on the high road to Sutton, Coldfield, and Birmingham (about five miles from the former and twelve from the latter towns), with a large old fashioned Manor House, capable, by a moderate outlay, of being restored to a gentleman's residence, with gardens and extensive and well-built farm homestead; also two other farm-houses and homesteads; the whole being let to substantial yearly tenants at rents amounting to £1160 per annum. The land is on the New Red Sandstone formation, directly beneath which the coal measures usually lie, and as the property is situated between the Cannock Chase, Leicestershire, and Warwickshire Coal Fields, there is great probability of its mineral resources becoming at no distant time developed; also a valuable Pleasure Farm, principally freehold, called Berry Hill, with farm-house and homestead, occupying high ground and commanding pleasing views, within a mile of the City of Lichfield, containing about 61 acres, presenting attractive building sites, let to yearly tenants, the whole offering to capitalists excellent opportunities for sound investments.

MESSRS. DANIEL SMITH, SON, AND OAKLEY have received

instructions to OFFER THE ABOVE ESTATE FOR SALE, BY AUCTION, at the Hen and Chickens Hotel, Birmingham, on Thursday, June 3, at Three for Four o'clock precisely, in Four Lots. The title rent charge on the property is very small, inappreciable tithes, amounting to £60 a year, forming part of the estate.

The South Staffordshire and Trent Valley Railways, with their stations at Lichfield, and the Birmingham and Sutton Coldfield Railway, with a station at Sutton Coldfield, afford easy and convenient access to all parts of the kingdom. The extension of the Sutton Coldfield Line to Lichfield, a bill for which is now before Parliament, will, when made, still further improve the railway accommodation of the district.

Particulars may be obtained of Messrs. TUCKER AND LAKE, Solicitors, 4, Serle-street, Lincoln's Inn, W.C.; of Messrs. GREGORY, ROWCLIFFES, AND CO., Solicitors, 1, Bedford-row, W.C.; of Messrs. J. MATHEWS AND SONS, Surveyors, 15, Waterloo-street, Birmingham; at the place of sale; and of the Auctioneers, 10, Waterloo-place, Pall Mall, S.W.

PRELIMINARY ADVERTISEMENT.

VALUABLE MINERAL ESTATES IN WORCESTERSHIRE.

MR. BATEMAN is instructed to SELL, BY AUCTION, in June next, TWO VALUABLE adjoining ESTATES, situated in the parishes of Hock and Baynton, in the county of Worcester, and containing together 203A, 3R, 13P., with the MINES of COAL and other MINES and MINERALS thereunder, and the COLLIERY PLANT thereon.  
Full particulars will appear in future advertisements.  
For information, apply to Mr. WHITCOMBE, Solicitor, Bewdley; or the Auctioneer, Dudley.

NOTICE OF SALE.

THE IRONWORKS OF KALLICH, with the GABRIELA FOUNDRY, situate in the "Erzgebirge," in BOHEMIA, are now to be DISPOSED OF BY SALE.

1.—The FOUNDRY in KALLICH comprises a small blasting furnace, with cylinder blowing engine, two cupola furnaces, iron and brass foundry, roasting furnace, stamping mill, two rod works, puddle rolling mill, with two puddling furnaces, one welding furnace, four flattening mills, one working steam-engine of 35 horse power, with three stationary boilers, two steam hammers, a tin factory, with five tin pans. A constant water power of 60 to 85 horse power is employed in the works. The privilege of peat digging in the neighbouring inexhaustible peat moors is secured by contract.

2.—The GABRIELA FOUNDRY comprises one rod foundry, one tin rolling mill, one turn work, driven by a water power of 30 horses.

Both works are abundantly provided with dwelling houses for functionaries and workmen, as well as with all other requisite buildings. The works may be inspected by applicants, and any desirable information may be obtained at the office of the undersigned firm, in Prague, Breite Gasse 3, first floor.

Purchasers are requested to transmit by May 31, 1875, to the undersigned, their offer (well closed, and with their full address on the envelope), which must contain plainly the price offered and the terms of payment, and which are binding for the applicant until June 15, 1875.

ERZGEBIRGS'EISEN-UND-STÄHLWERKE-GESSELLSCHAFT, IN KOMOTAN.

(In Liquidation.)

CHINA CLAY AND TIN, COPPER, AND IRON ORES

IN CORNWALL.

THE LESSEE'S INTEREST in certain VALUABLE CHINA CLAY AND TIN WORKS, in full operation, and also in certain CHINA CLAY AND TIN, COPPER, AND IRON ORES SETTS in CORNWALL TO BE DISPOSED OF.

Full particulars can be obtained on application to Mr. S. N. SCOTT, China Clay Merchant, St. Austell.

ISLE OF MAN.

VALUABLE MINING PROPERTY FOR SALE.

TO BE SOLD, BY PRIVATE TREATY, the BRADDA MINE, situate in the parish of RUSHEN, held under lease from the Crown, with BUILDINGS, MACHINERY (including THREE STEAM ENGINES), PLANT, and MATERIALS, in good working order.

The property is to be sold in consequence of the unexpended capital of the company being insufficient to work it effectually; the raisings of lead and copper have been considerable, and the workings are now standing in ore.

Particulars may be obtained from W. F. MOORE, Esq., or JAMES SPITALL, Esq., two of the directors resident in the Island; or Captain R. BARKELL, at the Mine.

## TENDERS FOR GAS COALS.

THE DIRECTORS of the SHREWSBURY GAS-LIGHT COMPANY are prepared to RECEIVE TENDERS for the SUPPLY of FIVE THOUSAND TONS of the best description of GAS COALS, and FIVE HUNDRED TONS of CANNEL, during the next twelve months.  
Such coals to be as free as possible from sulphur, bats, blind, refuse, and dirt, and shall be weighed upon the company's machine (2540 lbs. to the ton), and delivered free, by and at the expense of the contractor, at the Gas Works of the London and North-Western or Great Western Goods Station, Shrewsbury.  
Tenders, specifying the coals and the pits at which they are to be raised, must be delivered on or before the 27th day of May next.  
The lowest or any tender will not of necessity be accepted.  
S. B. DARWIN, Secretary.

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TO BE SOLD, a VALUABLE SEAM of fine quality GYPSUM, situated near a first-rate port. The property is about 800 acres in extent. The mineral is reached by an adit driven into the face of the cliff, so that the stone is brought to the beach at a small cost. The machinery is new, and is adequate to a large output. The neighbourhood is admirably suited for the manufacture of plaster of paris and cement, coal being abundant. The owner of the mine would sell or would lease the purchase money in as part capital in such an undertaking.  
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## CORNWALL.

OLD WHEEL ROSE.—A VALUABLE and CELEBRATED SILVER LEAD and SPATHOSE IRON MINE, adjoining the Port of Porthleven, in Mountabay, and situated in one of the best mineralised districts of Cornwall. The mine is held for 21 years from Midsummer, 1872; dues only 6d. per ton for iron, and 1-20th for other minerals, subject to a low minimum rent, to merge in dues. The mine has only been worked to a depth of 60 fms.; the lodes are productive, and easily wrought; vast quantities of silver-lead and other ores were returned in the former working, and thousands of tons of iron ore are said to have been left in the old workings. A very considerable quantity of work has recently been done in clearing and opening up the shafts and levels, and the mine may be set to work at once by the erection of machinery.  
The above offers a rare opportunity to a company or private capitalists for acquiring a good sound mineral property, and will be DISPOSED OF BY PRIVATE TREATY.  
Particulars, &c., may be obtained of F. G. PHILLIPS, Esq., Solicitor, No. 1A, Linton-terrace, Hastings, Sussex; or H. F. WHITEFIELD, Esq., Solicitor, St. Columb, Cornwall.

## FINE OPPORTUNITY FOR MAKING A FORTUNE.

TO BE SOLD, PART or ENTIRE (former preferred) of a COLLIERY ROYALTY, of about 170 acres, in NORTH WALES. The pit is sunk 40 yards deep to the seam containing the best description of Cannel. There are six other seams of good coal (the first being King Coal, only 14 yards under it) known to be beneath this seam. Its situation being half a mile from a railway station, and also admirably adapted for land sale, close to excellent roads, the working expense, royalty, rent, and outlay small for a probable get in a few weeks of 40 tons daily at an almost fabulous profit, render the present undertaking one well worthy the immediate attention of capitalists, coal dealers, gas manufacturers, or colliery proprietors.  
Address, "Q. E. D.," care of Mr. Watson, 15, Fenwick-street, Liverpool.

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PORTABLE ENGINES, ready for immediate delivery:—  
SINGLE CYLINDER ENGINES. DOUBLE CYLINDER ENGINES.  
7 h.p., with 9 in. cylinder. 9 h.p., with 2 7½ in. cylinders.  
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10 h.p., with 10½ in. cylinder. 12 h.p., with 2 8½ in. cylinders.  
12 h.p., with 11½ in. cylinder. 14 h.p., with 2 9 in. cylinders.  
14 h.p., with 12½ in. cylinders.  
20 h.p., with 2 10½ in. cylinders.

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ONE excellent 70 in. CORNISH PUMPING ENGINE, 10 ft. stroke, with metallic piston, with or without three boilers, 13 tons each, with fittings.  
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with link motion reversing gear; also an 18-horse, both with or without pit winding and pumping gear.

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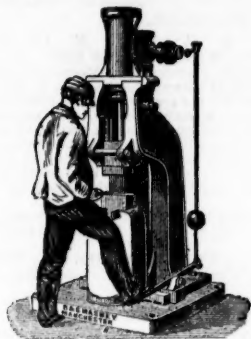
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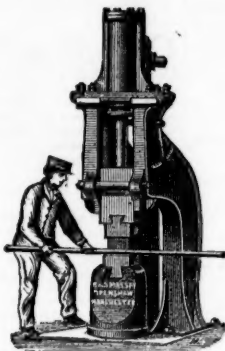
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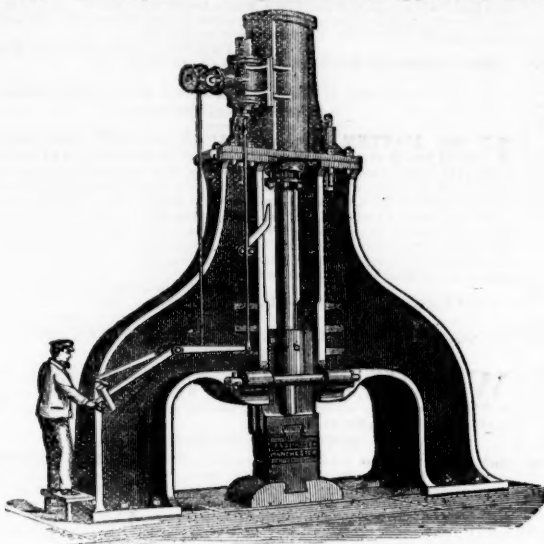
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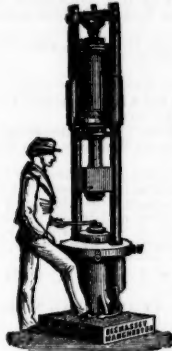
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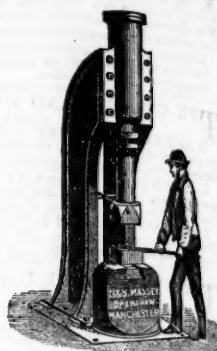
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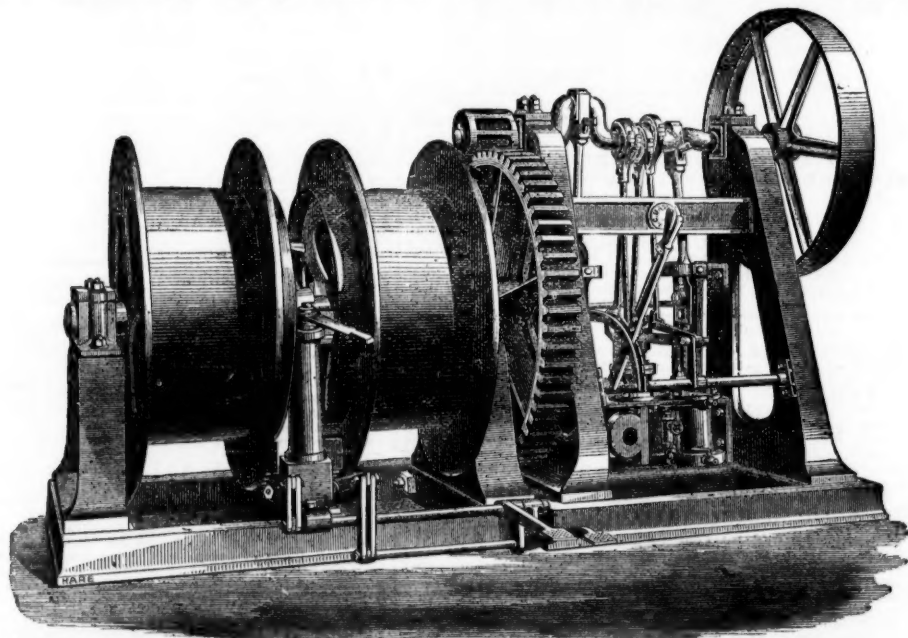
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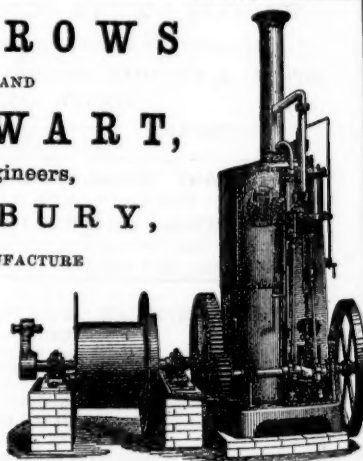
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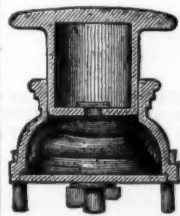
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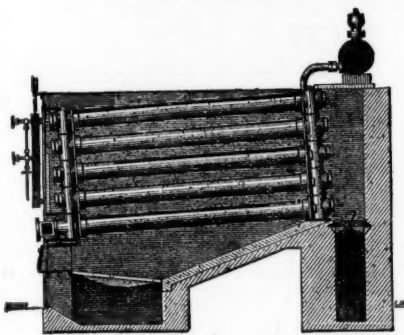
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## THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

| Shares. | Mines.  | Paid.    | Last Pr. | Clos. Pr. | Total divs. | Per share. | Last paid  |
|---------|---|----------|----------|-----------|-------------|------------|------------|
| 1500    | Alderley Edge, c, Cheshire                      | 10 0 0   | —        | —         | 12 6 8      | 0 5 0      | Jan. 1875  |
| 1000    | Bampfylde, c, Devon                             | 1 0 0    | —        | —         | 0 2 0       | 0 2 0      | June 1873  |
| 8500    | Blen Caelan, s, Cardigan                        | 3 10 0   | —        | —         | 6 10 9      | —          | —          |
| 200     | Botalack, t, c, St. Just                        | 116 5 0  | —        | —         | 619 18 0    | 0 8 0      | Aug. 1872  |
| 10000   | Bronfloy, t, c, Cardigan                        | 1 7 6    | —        | —         | 2 2 0       | 0 0 0      | Jan. 1872  |
| 4000    | Brookwood, c, Buckfastleigh                     | 1 16 0   | —        | —         | 3 6 6       | 0 4 0      | Mar. 1875  |
| 3548    | Cargoll, s, c, Newlyn                           | 5 7 0    | —        | —         | 4 16 3      | 0 12 6     | Oct. 1872  |
| 6400    | Cashwell, c, Cumberland                         | 2 10 0   | —        | —         | 1 6 6       | 0 2 6      | Aug. 1873  |
| 1000    | Carn Brea, c, t, Illogan                        | 35 0 0   | —        | —         | 308 0 0     | 1 0 0      | Feb. 1874  |
| 6000    | Cath. & Jane, l, Penrhynendendraeth             | 5 0 0    | —        | —         | 0 7 6       | 0 0 0      | June 1873  |
| 2450    | Cock's Kitchen, t, Illogan                      | 20 19 9  | —        | —         | 11 17 0     | 0 7 6      | Jan. 1873  |
| 10240   | Devon Gt. Consols, c, Tavistock                 | 1 0 0    | —        | —         | 116 10 0    | 0 12 0     | May 1872   |
| 4296    | Dolcoath, c, t, Camborne                        | 10 14 10 | —        | —         | 106 6 8     | 0 10 0     | Mar. 1875  |
| 6500    | Drake Walls, t, c, Calstock                     | 6 0 0    | —        | —         | 0 2 0       | 0 2 0      | July 1874  |
| 10000   | East Ballewadden, t, Sancreed                   | 1 0 0    | —        | —         | 0 2 11      | 0 0 0      | Feb. 1874  |
| 6144    | East Caradon, c, St. Cleer                      | 2 14 6   | —        | —         | 14 19 0     | 0 2 0      | Oct. 1874  |
| 300     | East Darren, t, Cardigan                        | 32 0 0   | —        | —         | 227 10 0    | 1 0 0      | Mar. 1875  |
| 6400    | East Pool, t, c, Illogan                        | 0 9 9    | —        | —         | 13 11 3     | 0 2 6      | May 1873   |
| 1906    | East Wheel Lovell, t, Wendron                   | 5 19 0   | —        | —         | 20 7 6      | 0 7 6      | Oct. 1874  |
| 2000    | Foxdale, l, Isle of Man                         | 25 0 0   | —        | —         | 80 16 0     | 0 10 0     | Sept. 1872 |
| 48000   | Glasgow Carr, c, (30,000 £1 p., 10,000 10s. p.) | 1 13 6   | —        | —         | 8 7 4       | 0 1 6      | Jan. 1875  |
| 15000   | Great Laxey, l, Isle of Man                     | 4 0 0    | —        | —         | 17 15 0     | 0 6 0      | Apr. 1875  |
| 35000   | Great West Van, l, Cardigan                     | 40 15 0  | —        | —         | 15 19 0     | 0 2 0      | Aug. 1874  |
| 6008    | Great Wheel Vor, t, c, Helston                  | 0 6 0    | —        | —         | 12 12 0     | 0 4 0      | Oct. 1874  |
| 6400    | Green Hurst, l, Durham                          | 2 0 0    | —        | —         | 0 2 0       | 0 4 0      | Dec. 1874  |
| 20000   | Grogwilion, l, Cardigan                         | 2 0 0    | —        | —         | 0 2 0       | 0 4 0      | Dec. 1874  |
| 6830    | Gunnislake (Clitters), t, c                     | 5 8 0    | —        | —         | 0 2 3       | 0 1 3      | Feb. 1875  |
| 1024    | Herodsfoot, l, near Liskeard                    | 8 10 0   | —        | —         | 62 5 0      | 0 15 0     | Oct. 1872  |
| 18000   | Hingston Down, c, Calstock                      | 2 5 0    | —        | —         | 4 3 0       | 0 0 0      | Dec. 1872  |
| 35000   | Killicole, l, Tipperary                         | 1 0 0    | —        | —         | 3 11 6      | 0 6 0      | Mar. 1873  |
| 400     | Liaburne, l, Cardigan                           | 18 15 0  | —        | —         | 666 10 0    | 1 0 0      | Apr. 1875  |
| 6120    | Lovell, t, Wendron                              | 0 10 0   | —        | —         | 0 17 6      | 0 1 6      | Jan. 1874  |
| 11000   | Melindur Valley, l, Cardigan                    | 3 0 0    | —        | —         | 0 7 2       | 0 3 0      | Jan. 1875  |
| 9000    | Minera Mining Co., l, Wrexham                   | 5 0 0    | —        | —         | 63 19 2     | 0 2 0      | May 1875   |
| 80000   | Mining Co. of Ireland, c, l                     | 7 0 0    | —        | —         | 0 8 0       | 0 6 0      | July 1872  |
| 13000   | North Hendre, l, Wales                          | 12 2 0   | —        | —         | 4 13 0      | 0 12 0     | Apr. 1875  |
| 3000    | North Levant, t, c, St. Just                    | 12 2 0   | —        | —         | 4 13 0      | 0 12 0     | Apr. 1875  |
| 27858   | Old Treburgett, s, ordinary shares              | 1 0 0    | —        | —         | 0 0 9       | 0 0 9      | Feb. 1874  |
| 9258    | Old Treburgett, s, (10 per cent. pref.)         | 0 10 0   | —        | —         | 0 1 4       | 0 6 0      | July 1874  |
| 6094    | Pedn-ar-drea, t, Redruth                        | 9 2 0    | —        | —         | 0 5 0       | 0 0 0      | Nov. 1871  |
| 6000    | Penhall, t, St. Agnes                           | 3 0 0    | —        | —         | 3 11 6      | 0 2 6      | Apr. 1875  |
| 43793   | Penarth, t, c, Gwynnapp                         | 2 0 0    | —        | —         | 0 2 0       | 0 1 0      | Nov. 1874  |
| 6000    | Phenix, t, c, Llanidloes                        | 4 13 4   | —        | —         | 39 19 0     | 0 4 0      | Nov. 1872  |
| 1772    | Polberro, t, St. Agnes                          | 15 0 0   | —        | —         | 1 12 6      | 0 8 0      | Mar. 1872  |
| 18000   | Princes Patrick, t, Holywell                    | 16 16 7  | —        | —         | 104 12 6    | 0 10 0     | Jan. 1875  |
| 1120    | Providence, t, Llanidloes                       | 2 0 0    | —        | —         | 0 2 0       | 0 2 0      | Sept. 1872 |
| 2000    | Queens, s, Holywell                             | 7 10 0   | —        | —         | 4 19 0      | 0 8 6      | May 1875   |
| 12000   | Roman Gravel, l, Salop                          | 12 2 0   | —        | —         | 0 1 0       | 0 1 0      | Feb. 1872  |
| 612     | South Caradon, c, St. Cleer                     | 1 5 0    | —        | —         | 719 0 0     | 2 0 0      | Dec. 1874  |
| 5000    | South Carn Bren, c, t, Illogan                  | 2 1 6    | —        | —         | 0 10 0      | 0 2 6      | July 1872  |
| 6000    | South Darren, l, Cardigan                       | 3 6 8    | —        | —         | 1 1 6       | 0 1 6      | Nov. 1870  |
| 10000   | So. Pr. Patrick, s, (8000 sh. issued)           | 1 0 0    | —        | —         | 0 6 0       | 0 2 0      | Apr. 1875  |
| 8771    | St. Just Amalgamated, s                         | 3 10 0   | —        | —         | 0 9 0       | 0 4 0      | Nov. 1871  |
| 12000   | Tankerville, l, Salop                           | 6 0 0    | —        | —         | 5 13 0      | 0 5 0      | May 1875   |
| 6000    | Tinroft, c, t, Pool, Illogan                    | 9 0 0    | —        | —         | 48 3 6      | 0 5 0      | May 1875   |
| 18000   | Trevel, t, Bodmin                               | 2 0 0    | —        | —         | 9 11 0      | 0 1 0      | Mar. 1874  |
| 4000    | Trumpet Consols, t, Helston                     | 4 0 0    | —        | —         | 14 11 6     | 0 12 0     | Apr. 1875  |
| 15000   | Van, l, Llanidloes                              | 4 5 0    | —        | —         | 62 10 0     | 0 5 0      | June 1875  |
| 8000    | W. Chiverton, l, Perranzabuloe                  | 12 10 0  | —        | —         | 6 0 0       | 1 5 0      | Apr. 1875  |
| 612     | West Tolgus, c, Redruth                         | 12 10 0  | —        | —         | 3 12 6      | 0 5 0      | Oct. 1872  |
| 2048    | West Wheel Frances, t, Illogan                  | 27 3 9   | —        | —         | 638 10 0    | 1 10 0     | Aug. 1872  |
| 612     | Wheel Basset, c, Illogan                        | 3 2 8    | —        | —         | 11 0 0      | 1 0 0      | Dec. 1874  |
| 3048    | Wheel Jane, t, Kea                              | 2 13 10  | —        | —         | 11 19 6     | 0 3 6      | Dec. 1874  |
| 4295    | Wheel Killy, t, St. Agnes                       | 4 4 6    | —        | —         | 82 2 0      | 0 2 0      | Nov. 1872  |
| 884     | Wheel Margaret, t, Holywell                     | 15 17 6  | —        | —         | 622 10 0    | 4 0 0      | Dec. 1874  |
| 80      | Wheel Owles, t, St. Just                        | 95 5 0   | —        | —         | 0 1 0       | 0 1 0      | Dec. 1874  |
| 6000    | Wheel Prussia, t, Redruth                       | 2 0 0    | —        | —         | 0 3 0       | 0 6 0      | Nov. 1874  |
| 12000   | Wheel Russell, c, Tavistock                     | 1 0 0    | —        | —         | 0 1 6       | 0 6 0      | Mar. 1873  |
| 10000   | Wheel Whimper, t, c, Warleggan                  | 1 0 0    | —        | —         | 52 9 0      | 0 2 6      | Mar. 1873  |
| 35000   | Wicklow, c, s, t, Wicklow                       | 2 10 0   | —        | —         | 0 3 0       | 0 3 0      | Mar. 1872  |
| 10000   | Wye Valley, l, Montgomery                       | 3 0 0    | —        | —         | —           | —          | —          |

FOREIGN DIVIDEND MINES.

| Shares. | Mines.                              | Paid.   | Last Pr. | Clos. Pr. | Total divs. | Per share. | Last paid  |
|---------|-------------------------------------|---------|----------|-----------|-------------|------------|------------|
| 35000   | Alamillos, l, Spain                 | 2 0 0   | —        | —         | 1 7 9       | 0 2 0      | Mar. 1875  |
| 30000   | Almaden and Tinto Consol., s        | 1 0 0   | —        | —         | 0 5 3       | 0 1 0      | Mar. 1875  |
| 30000   | Australian, c, South Australia      | 7 7 0   | —        | —         | 0 13 6      | 0 2 0      | Nov. 1872  |
| 10000   | Battle Mountain, c, (9240 part pd.) | 5 0 0   | —        | —         | 0 10 0      | 0 10 0     | Nov. 1872  |
| 15000   | Birdseye Creek, c, California       | 4 0 0   | —        | —         | 0 14 0      | 0 2 6      | June 1874  |
| 6000    | Bennet, l, Germany                  | 10 0 0  | —        | —         | 0 17 4      | 0 8 0      | Oct. 1872  |
| 12320   | Burra Burra, c, So. Australia       | 5 0 0   | —        | —         | 56 0 0      | 0 10 0     | Oct. 1872  |
| 20000   | Cape Copper Mining, t, So. Africa   | 7 0 0   | —        | —         | 19 15 0     | 1 0 0      | Mar. 1875  |
| 40000   | Cedar Creek, c, California          | 5 0 0   | —        | —         | 0 5 0       | 0 2 6      | June 1875  |
| 30000   | Central American Association, t     | 0 16 8  | —        | —         | 0 6 0       | 0 1 0      | July 1869  |
| 15000   | Chicago, c, U.S.                    | 10 0 0  | —        | —         | 1 12 0      | 0 4 0      | May 1875   |
| 11000   | Colorado Ferribe, c, Nevada         | 3 0 0   | —        | —         | 1 13 6      | 0 4 0      | Jan. 1875  |
| 100000  | Don Pedro North del Rey, t          | 0 16 0  | —        | —         | 2 2 0       | 0 2 0      | Nov. 1872  |
| 15000   | Eberhardt and Aurora, s, Nevada     | 10 0 0  | —        | —         | 1 0 0       | 1 0 0      | July 1872  |
| 2852    | Eldorado, c, Nova Scotia            | 10 0 0  | —        | —         | 2 5 0       | 0 15 0     | June 1872  |
| 40000   | Emma, s, g, Utah                    | 20 0 0  | —        | —         | 3 12 0      | 0 6 0      | Dec. 1872  |
| 70000   | English and Australian, c, S. Aust. | 2 10 0  | —        | —         | 2 10 0      | 0 3 6      | Mar. 1875  |
| 15000   | Ferguson, c, California             | 2 0 0   | —        | —         | 0 3 0       | 0 3 0      | April 1872 |
| 30000   | Flagstaff, s, Utah                  | 10 0 0  | —        | —         | 4 2 0       | 0 5 0      | July 1873  |
| 26000   | Fortuna, l, Spain                   | 2 0 0   | —        | —         | 4 14 4      | 0 7 6      | Mar. 1875  |
| 30000   | Gold Run, s, Utah                   | 1 0 0   | —        | —         | 0 2 4       | 0 0 0      | Oct. 1872  |
| 68000   | Kapunda Mining Co. Australia        | 1 3 0   | —        | —         | 0 2 4       | 0 6 0      | June 1873  |
| 20000   | Last Chance, c, Utah                | 5 0 0   | —        | —         | 14 19 0     | 0 2 0      | July 1873  |
| 15000   | Linares, l, Spain                   | 5 0 0</ |          |           |             |            |            |